A Clinical Lecture

ON

THE EARLY DIAGNOSIS OF CANCER OF THE STOMACH.

Delivered before the Final Fellowship Class at the London Hospital

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GENTLEMEN,—The subject to which I wish to draw your attention to-day only a few years ago was considered to be entirely outside the province of surgery. Many of our medical colleagues appear to think that it is so still. Yet it is absolutely beyond contradiction that the only proceeding known at the present day which holds out the least hope of curing a patient suffering from this complaint is a surgical operation. Medicine does not offer the slightest, and does not pretend to; it merely treats the symptoms and lets the disease alone. And I have no hesitation in expressing my conviction that the time is not far distant when the public, who are much better informed as to the progress of surgery and surgical treatment than is usually believed, will insist on a surgical consultation being held at the earliest opportunity in every case in which there is the least suspicion of the existence of this complaint. One of our greatest living authorities on diseases of the stomach the other day went so far as to say that the repugnance of the patient to operative measures is very often merely the outcome of the repugnance and lack of initiative in the physician.

Cancer of the stomach at its onset is a local complaint. If operated upon sufficiently early it can be removed completely and the patient cured. If left it involves the glands in a definite order and spreads into neighbouring structures, such as the pancreas, but for cancer it is for a long time free from the presence of metastatic growths which either make their appearance late or not at all. The stomach, unless it has been allowed to become tied down by adhesions, is easily accessible in all its parts, with the exception of the cardiac orifice, and stands sutures singularly well. Shock, unless the patient is exhausted by advanced disease and prolonged starvation, need never give rise to anxiety. Peritonitis is a thing of the past. Primary union with restoration of function can be relied upon if only the favourable time has not been allowed to pass by. Our task is to make a diagnosis while the growth is still local, before it has involved the glands or the neighbouring organs, while the cancer is still in that stage in which removal can be effected without too great a degree of risk. When the diagnosis is obvious, when the glands in the neck are involved and there is a fixed tumour in the abdomen, when the patient has already lost two or three stones in weight and there is a cachectic look upon his face, it is too late. The only chance has been lost and nothing can bring it back again. Unhappily, in London at least, patients suffering from cancer of the stomach are usually allowed to reach this stage in a well-developed form before the condition is realised. In the North it appears to be different.

Cancer of the stomach is met with in circumstances so different that cases may be divided into two distinct classes. It may either begin, apparently *de novo*, in a perfectly healthy stomach, in a perfectly healthy man who has never had more than the most transient indigestion; or it may develop at the site of some old chronic ulcer which has been the cause of more or less suffering for years past. It is still undecided what proportion these two classes bear to each other. Some years ago Hauser estimated that at least 4 per cent. of cases of chronic ulcer ended in cancer, but this is manifestly a very low estimate. Looking at it from the opposite point of view, Snapeshko found that out of 100 cases of carcinoma of the stomach all but ten had originated in this way. Jedlicka, from the statistics of Maydl's clinic, considers that this mode of origin is much the more frequent of the two. Certainly carcinoma and chronic ulcer are both most common in the same regions of the stomach; and with the well-known tendency for carcinoma in other parts of the body to originate from the neighbourhood of scars, especially of scars that are constantly being irritated, it seems only natural that this mode of origin should be the common one. Our own post-mortem statistics are of no value with regard to this point, for nearly always by the time a patient has died from cancer of the stomach all trace of any antecedent ulcer has long since disappeared. The only certain information we shall ever have must be derived from a long series of early operations carefully recorded, but all probability is in favour of the proportion being a very high one, even if it falls short of 90 per cent.

Now, gentlemen, I have not brought any museum specimens to show you to-day, for the very good reason that none of them illustrate the point to which I wish to direct your attention. Museum specimens are of especial value in showing us what should not be allowed to occur. They illustrate the last stage of the disease, the stage that is incompatible with the further prolongation of life, when no one would dream of such a thing as operation. What I wish to deal with to-day is the very earliest, the stage in which there is yet hope not only of relief but of cure, and naturally specimens that illustrate this are only to be obtained by the rarest chance. But I have brought the clinical histories of several patients who have been recently under my care and these I propose to discuss with you now. For the present I am only concerned with those cases in which there is either no history of ulcer of the stomach at all or in which, if there has been an ulcer at some distant time, it has long since ceased to cause any symptoms. All those cases in which there is evidence either of long-standing ulceration or of the deformity and contraction which it so often leaves behind it I shall put aside. Whether cancer is beginning to develop in them or not ought not to make the least difference in the line of treatment. In all alike cure is impossible without an operation and even the smallest measure of relief improbable. Delay only makes the condition worse—very quickly if cancer is present, more slowly if it is not, until at last in either case the time comes when nothing can be done and the specimen is mounted in a museum as a warning.

Looking back upon these histories the first thing to attract the patient's attention was nearly always either an alteration in the appetite or pain. In several vomiting occurred as an early symptom; one patient persisted that he had never been troubled in any way until he had a sudden attack of hæmatemesis; and one or two, though they were aware that something was not right, never complained until they had become alarmed by suddenly discovering the existence of a tumour; but in nearly every case careful inquiry elicited the fact that either some alteration in appetite or pain, or both together, preceded everything else. The alteration in appetite took various forms. In most there was a distaste for meat and all rich articles of diet. In some the distaste was general. There was complete loss of appetite; no wish or desire for food, even a loathing of it, though previously the appetite had been normal. I have not met with any instances in which the appetite was increased though such are said to be by no means uncommon. Exercise, cold, and change of air made little or no difference. There was no definite evidence of gastritis though most suffered from flatulence and one or two used to vomit a little mucus; there were simply no wish to eat and an utter distaste for food. Then, very soon, loss of strength and energy followed and in those who kept a record loss of weight as well. In several who were under my care the loss of energy was not only physical but mental. They became listless and apathetic, taking no interest even in their own symptoms, tired of everything. I am bound to add that in most the change was so quiet that it was only by looking back that it could be appreciated and this, no doubt, is one reason why it is so seldom recorded, but I do not think it easy to over-rate the importance of it when it does occur. Distaste for food, and particularly for albuminous food, occurring suddenly without any definite reason in a middle-aged person who is apparently healthy and who has never given occasion for gastritis is a very disquieting symptom.

Pain, varying in severity, may occur at the same time as loss of appetite or not until later. It is rarely absent altogether, though it may be no more than a sense of oppression and discomfort. As a rule it is continuous and though, as in simple gastric ulcer, it is worse after meals, it never quite disappears and vomiting does not give much relief. The usual situation for it is in the epigastrium and

it is nearly always associated with deep tenderness. Superficial or cutaneous hyperæsthesia I have seldom seen in cases of cancer, unless there was some obstruction at the pylorus.

Now, as I have described to you on former occasions, the walls of the stomach are quite insensitive to ordinary stimuli, such as cutting, crushing, or the application of heat or acid. On the other hand, the slightest pull upon the parietal peritoneum is felt at once most acutely and produces a marked effect even if the patient is under deep anæsthesia. The pain therefore of cancer of the stomach cannot be due to contact of the food with the surface of the sore; nor can its exacerbation an hour or so after meals be caused by the increasing acidity of the contents of the stomach, even in those exceptional instances in which the acidity is increased. The real cause is undoubtedly the movements of the stomach. The parietal peritoneum is normally highly sensitive; and when there is a cancerous growth it is made very much more sensitive by the hyperæmia which always surrounds such a growth. This increased sensitiveness is the reason why the pain in cancer is continuous, why it never really ceases as it does in cases of simple ulceration, and this, too, is the reason why the pain becomes severe as soon as the stomach begins to work. If the growth is near the cardiac end the exacerbation begins as soon as the food is swallowed. When it is near the pyloric end it does not set in until later, and always the pain increases in intensity in proportion to the degree in which the orifices are obstructed. The narrower the passage the greater the effort and the more severe the pain.

As cancer occurs at or near the pylorus in 60 per cent. of the cases of cancer of the stomach, and in 10 per cent. at the cardia, it can be understood that pain is rarely absent in this disease and is an early symptom. In those rare instances in which the growth starts at the greater curvature there may be no complaint of pain until the transverse mesocolon has become involved.

When the two symptoms which I have mentioned—distaste for food and more or less pain—occur together without any obvious reason in a middle-aged person who has previously enjoyed good digestion, and when they do not disappear in the course of a week or two under ordinary treatment, it becomes imperative to try to ascertain what is the actual condition of the stomach. It is of no use waiting for the symptoms to mature, for a tumour to show itself, or for the loss of strength and weight to become so plain that its cause is unmistakeable. It is too late then. The diagnosis, if it is to be of any use, must be made while there is still a chance of curing the patient. How it is to be done, how suspicion is to be converted into a reasonable degree of certainty, is the problem before us.

So far, of all the methods of investigation that have been proposed and tried there are only two that are of the least real use in practice, and only one upon which much reliance can be placed. The first of these is a more exact examination of the working power of the stomach than can be obtained by inquiring into the patient's sensations, and the second is direct palpation through an incision. The estimation of leucocytosis during the process of digestion, illumination of the stomach, testing its absorptive power by giving the patient some substance such as iodide of potassium which ought to make its appearance in the excreta within a few minutes, radiography after the ingestion of bismuth or other opaque substances, whether free or inclosed in an albuminous capsule which should dissolve in a certain time, and other methods which have been tried from time to time are either not within the range of practical surgery or else give results which cannot be relied upon.

In actual every-day practice, where you have to deal with men and women who have never had an instrument passed down their œsophagus, and who have the greatest dislike to the idea of it, the utmost that you can do in order to ascertain the working power of the stomach more exactly is to give some simple form of test meal and after a certain time has passed empty the stomach of its contents. By doing this it is possible to ascertain with a fair degree of accuracy the composition of the gastric juice, its activity, whether there are abnormal substances present, and whether the stomach still retains its motive power unimpaired. But it does not succeed nearly so well with private patients as with those who are accustomed to have it done for laboratory purposes and who have furnished all the chief data that we know. Moreover, in any case a single trial is not enough. It must be repeated at least once, and very often it is necessary to vary the conditions and do it several times, for it is not easy to find out by a single test whether, for instance, the stomach is capable of emptying itself in the right time as well as of secreting a normal gastric juice. You will find very often that it will tax all the persuasive power you possess before the patient will consent to have it done in such a way as to make the result worth having.

The ordinary test meals are Ewald's (35 to 70 grammes of wheaten bread and 300 to 400 cubic centimetres of water or of weak tea) and Boas's (oatmeal soup, made by boiling rolled oats in water with a little salt). The latter is preferable in one respect that it does not contain any preformed lactic acid. The results they give are fairly uniform, but they both labour under the defect of being decidedly unappetising, even to those whose digestion is in good working order. They do not appeal to the special senses in any way, and consequently they do not give any information with regard to the possibilities of the secreting power of the stomach. The patient should, of course, have fasted for some hours or the stomach must be washed out first. Then, after a certain specified time, usually one hour in the case of such a simple meal, the contents of the stomach are syphoned off by means of a tube and examined. In those instances in which it is wished to ascertain the motive power of the stomach, either a longer time, about three hours, should be allowed; or a meal of a totally different character, the products of which can be easily recognised, should be given six hours before. If any of this is found when the contents of the stomach are removed after the second meal it is clear that the stomach has failed to empty itself as rapidly as it should.

If in such a case as the one which we have just been considering, in which there have been rebellious anorexia and more or less continuous pain, chemical examination shows the absence of free hydrochloric acid or the presence of lactic acid in more than that minute quantity that may have come from the mouth; or if the microscope shows the presence of that peculiar slender non-motile organism known as the Oppler-Boas bacillus, there can be no question that exploration should be carried out with the least possible delay. It is true that the Oppler-Boas bacillus and lactic acid (there is good reason for thinking that the two are associated together) may be present in other disorders, such as dilatation of the stomach without carcinoma; and that free hydrochloric acid (and even that which is combined) may be absent in chronic gastritis, advanced pulmonary tuberculosis, atrophy of the stomach wall, cardiac disease, and, as we have recently had occasion to observe, carcinoma of the transverse colon; but the combination of these symptoms is so suggestive, the risk of leaving a carcinoma so great, the risk of exploration so slight, that there should not be a moment's hesitation. Other tests are of no help. The presence, for example, of small quantities of blood or of sarcinæ or other organisms is of no value one way or the other; and unless the growth is very far advanced there is no probability of finding any fragment of it in the débris or of recognising it if found.

The unfortunate side of all these experiments is that a negative result is not of the least value and ought not to influence either your diagnosis or your treatment. Free hydrochloric acid may be present in abundance when there is cancer, especially in that very common form which originates from the scar of an old ulcer and which is often associated with the presence of a tumour. Lactic acid may be entirely wanting. It usually is when there is free hydrochloric acid, as this interferes with the growth of the organism that causes the fermentation. The Oppler-Boas bacillus may be absent. There may not be a trace of blood and the stomach may be able to empty itself completely within a reasonable time, and yet there may be cancer. You may well ask then what is the use of these experiments, which are repugnant to the patient's feelings, and what is to be done if the result they give is either inconclusive or negative? They are purely for confirmation. You must make up your mind first from the clinical data which you can learn at the patient's bedside. There is far too great a tendency at the present day to rely upon what are called exact scientific methods of diagnosis and to overlook the patient. Laboratory findings, as we know them at the present day, are of very little use in the early stages of such a disease as this. When the results at which they arrive are sufficiently well marked to dispel doubt it is nearly always too late. It may not be so by-and-by. I have the greatest possible respect for those engaged in such a difficult line of work. But it is so now. If the experiments confirm your suspicions, well and good. If they do not you

must have the courage of your convictions and make up your mind that if one or two weeks' treatment does not effect a distinct improvement you will proceed to the other method which I mentioned—direct palpation through an incision. If there are really rebellious anorexia and more or less continuous pain I should certainly not wait longer.

I have the strongest possible objection to what I have sometimes spoken of to you as roving commissions inside the abdomen, and I have consistently declined to adopt such a proceeding. But when there is definite evidence that one particular organ is not doing its work as it should do; when there is no reason to be found why it does not; and when it is clear that the patient's health is beginning to suffer the circumstances are absolutely different. Exploration is no longer a roving commission. It is part of a definitely thought-out plan to clear up the reasonable suspicion of the existence of a disease which must be dealt with at once if at all, and which if left will inevitably prove fatal within no long space of time. What is there to be said against it? Suppose after all that no trace of induration or of adhesions or of anything that could suggest the presence of cancer is found; suppose there is nothing wrong? In such a case the risk incurred by the operation, if performed with due precautions as it is at the present day, is no greater than that of the anæsthetic. I quite admit that in cases of hopeless abdominal cancer laparotomy may prove fatal, or certainly may hurry the patient along the downward path; but that is because they are cases of hopeless cancer. Where there is no cancer or other incurable disease sapping the patient's strength there is practically no danger.

Granted that the method is safe, is it certain? Is it not possible that cancer might be overlooked, or that the induration around an old chronic ulcer might be mistaken for cancer? That, of course, is a mere question of experience. It is conceivable that a small carcinoma in the most inaccessible portion of the stomach might not be felt but it is most improbable; and with regard to the other point, if there is a chronic ulcer with such an amount of induration around it that it is impossible to distinguish it from carcinoma, it should be dealt with in the same way and either excision or gastro-jejunostomy should be performed according to the condition found. If not cancerous already there is very grave reason to fear that such an ulcer, continually being irritated, will become cancerous.

Finally, if cancer is found, is it wise or safe to attempt to remove it, or is such a proceeding attended with too much risk? That is the strongest argument in favour of early exploration that can be suggested. The risk is exactly proportionate to the extent of the growth and the length of time it has lasted. The chief reason why the results, which have improved enormously of late years, are not better than they are is that the diagnosis is not allowed to be made sufficiently early, that direct palpation through an incision is not resorted to at the first suspicion. If only this were done statistics would tell a very different tale.

Let me conclude with a remark from one who is a recognised authority—Hemmeter: "The simple continuance of a chronic gastritis, or nervous dyspepsia, in spite of logical and scientific treatment, accompanied with progressive loss of body weight during three or four weeks, justifies the suspicion of latent gastric carinoma." If you suspect the existence of cancer you must not wait.

FOREIGN UNIVERSITY INTELLIGENCE.

Basle: Dr. Fritz Voit of Erlangen has been appointed to succeed Professor His who goes to Göttingen.—*Berlin:* Dr. F. W. Seiffer, *privat-docent* of Neurology and Mental Diseases, has been granted the title of Professor.—*Freiburg:* Dr. Adolf Windaus, *privat-docent* of Chemistry, has been granted the title of Extraordinary Professor.—*Halle:* Dr. Walter Gebhardt, *privat-docent* of Anatomy, has been granted the title of Professor.—*Heidelberg:* Dr. R. O. Neumann, *privat-docent* of Hygiene and of Bacteriology, has been promoted to an Extraordinary Professorship.—*Pavia:* Dr. Carlo Tarchetti of Genoa has been recognised as *privat-docent* of Internal Pathology.—*Pisa:* Dr. Adolfo Dario Bocciardo has been recognised as *privat-docent* of Internal Pathology and Dr. Luigi Ricchi as *privat-docent* of Ophthalmology.—*St. Petersburg (Military Medical Academy):* Dr. Khavtoffski has been promoted to the Ordinary Professorship of Anatomy.

A STUDY OF THE STREPTOCOCCI PATHOGENIC FOR MAN.

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(*Continued from p. 713.*)

IT now remains to give in detail the results of our examination of the streptococcal strains which we have found associated with disease in man.

IV. ANALYSIS OF 228 STRAINS OF STREPTOCOCCI, PATHOGENIC FOR MAN, ON THE LINES OF THE ALREADY INDICATED CLASSIFICATION.

The results fall into two groups, those in which they are clearly the primary causal agent in the disease and those in which they have been isolated from cases in which the primary disease was evidently or possibly due to other causes. This second group is nevertheless one of much importance, for the streptococci are of all bacteria the commonest in "secondary" infections. Disregarding the first form, streptococcus equinus, which is not known to have any relation with human disease, we shall consider the types which we have found under five headings. We disregard also streptococcus mitis, as the few examples met with in disease can with equal convenience be classed as variants of streptococcus salivarius.

1. *Streptococcus pyogenes (syn.: streptococcus erysipelatos).*—We give first a tabular view of the variants which we are disposed to refer to this, the commonest pathogenic species.

TABLE II.

		Reaction with Gordon's nine tests.									Growth on gelatin at 20° C.	Morphology.	Frequency of occurrence.	
		Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.	Conferin.	Mannite.			Definitely pathogenic.	Associated with disease.
Type form ...	1a	·	·	+	+	·	·	+	·	·	+	Longus to medius.	33	5
Variant liquefaciens	1b	·	·	+	+	·	·	±	·	·	Liquefying. +	Medius.	·	1
	1c	·	·	+	+	·	·	·	·	·	+	Longus.	6	3
	1d	·	·	·	+	·	·	+	·	·	+	,,	2	1
	1e	·	·	·	+	·	·	·	+	·	Liquefying +	,,	1	·
	1f	·	·	·	+	·	·	·	·	·	+	Medius.	·	2
Variants by defect or excess.	1g	·	·	+	·	·	·	+	·	·	+	Longus.	5	·
	1h	·	·	+	·	·	·	·	·	·	+	,,	4	1
	1i	·	·	+	+	·	·	+	+	·	+	,,	5	1
	1j	·	·	·	+	·	·	+	+	·	+	,,	1	·
	1k	·	·	+	+	·	·	+	·	+	+	,,	7	1
	1l	·	·	+	+	·	·	·	·	+	+	,,	2	·
	1m	·	·	·	+	·	·	·	·	+	+	,,	2	·
	1n	·	·	+	·	·	·	+	·	+	Not recorded.		1	·
Totals		...	...	...	...	...	...	...	...	...	...	...	71	20

The characters which induce us to refer any given specimen to this species are negative reactions with milk, neutral red, raffinose, and inulin, vigorous growth on gelatin at 20° C., long to medium chains in broth, and a speedily fatal result when inoculated into a mouse soon after isolation from the patient's blood or tissues. We must now specify the actual diseased conditions from which we have cultivated the varieties in the foregoing table.

1*a*.—We have met with the typical form of streptococcus pyogenes (1*a*) 33 times as a pathogenic agent and five times associated with disease processes though not clearly the primary cause thereof. Adding to these 38 the five instances recorded by Gordon in disease, in order to make the list as complete as possible, the cases are as follows:—

Abscess and suppurating wounds	12 cases
Suppurative pericarditis	2 ,,
Suppurative peritonitis (post-operative)	2 ,,
Pyæmia and suppurative arthritis	2 ,,
Suppurative otitis in scarlet fever	1 case
Purulent milk associated with sore-throats	1 ,,
Cellulitis	2 cases
Erysipelas	2 ,,
Impetigo	1 case
Septicæmia, including 2 puerperal cases	13 cases
Associated with disease—	
Scarlet fever throat	4 ,,
Pemphigus bulla	1 case
	43 cases.

1*b*.—The liquefying form of streptococcus pyogenes (type) was met with once only from the inflamed pharynx and fauces of a child brought to the hospital suffering from an acute illness which may or may not have been a malignant form of scarlet fever. All the streptococcal colonies isolated from the throat were alike.

1*c*.—The variant lacking the salicin reaction, which comes next in frequency to the type, was found by us four times as a definitely pathogenic agent and seven times associated with disease. To these we add five cases of Gordon's, when they appear as follows:—

Malignant endocarditis	1 case
Septicæmia, including 2 puerperal cases	6 cases
Pleural effusion	1 case
Associated with disease—	
Scarlet fever throat	3 cases
Simple tonsillitis	1 case
Membranous stomatitis	1 ,,
Rheumatism—heart's blood	1 ,,
Rheumatic pericarditis	1 ,,
Sputum—case of suspected plague	1 ,,
	16 cases

1*d*.—This variant was met with three times—once in an empyema, and once associated with simple tonsillitis.

1*e*.—This form which, when first isolated, liquefied gelatin, was met with once in a fatal septicæmia occurring in the course of cellulitis.

1*f*.—The form reacting with lactose alone we found twice but not in cases where it could be regarded as the primary cause of the disease. Once it was from a scarlet fever throat and once from a membranous stomatitis.

1*g*.—This variant has been found five times.

Suppurating cervical gland after tonsillitis	1 case
Pyæmia and suppurative arthritis	1 ,,
Suppurative meningitis (post-operative)	1 ,,
Peritonitis following on cholangitis	1 ,,
Malignant endocarditis	1 ,,

1*h*.—The form reacting with saccharose alone we have met with four times as a pathogenic agent and once associated with disease.

Abscess	1 case
Cellulitis	1 ,,
Peritonitis, secondary to salpingitis	1 ,,
Septicæmia	1 ,,
Associated with disease—	
Scarlet fever throat	1 ,,

1*i*.—We have met with a coniferin reaction in addition to the type reactions of streptococcus pyogenes in six cases, including one in which there was no evidence that the organism was the primary causal agent.

Cervical abscess	1 case
Cellulitis	1 ,,
Posterior urethritis	1 ,,
Peritonitis	2 cases
Associated with disease—	
Scarlet fever throat	1 case

1*j*.—A form closely related to 1*i* was isolated from the same case of cervical abscess. It lacked only the saccharose reaction.

1*k*.—The mannite-fermenting variants of streptococcus pyogenes are not uncommon. We have met with them 10 times; Gordon records three such cases. There are four varieties: 1*k* has occurred eight times.

Acute epiphysitis	1 case
Septicæmia (including 2 puerperal cases)	4 cases
Erysipelas and pyæmia	1 case
Pleural effusion	1 ,,
Associated with disease—	
Scarlet fever throat and gland	1 ,,

1*l*.—This form resembles 1*k* save that it lacks the salicin reaction. Gordon met with it once and we have met with it once. In each case it was in septicæmia associated with erysipelas.

1*m*.—The variant fermenting lactose and mannite only was met with once by us in a case of pyæmia and suppurative arthritis, and once by Gordon in an abscess.

1*n*.—The variant reacting with saccharose, salicin, and mannite was met with once in a serous pleurisy.

2. *Streptococcus salivarius*.—The following is a tabular view of the chemical variants which we have met with in diseased conditions and conveniently to be grouped, in our judgment, under this heading:

TABLE III.

		Reactions with Gordon's nine tests.									Growth on gelatin at 20° C.	Morphology.	Frequency of occurrence.	
		Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.	Coniferin.	Mannite.			Definitely pathogenic.	Associated with disease.
Type form	2*a*	+	+	+	+	+	·	·	·	·	±	Brevis.	1	1
Variants by defect and excess.	2*b*	+	+	+	+	·	·	·	·	·	±	,,	2	2
	2*c*	+	·	+	+	+	·	+	·	·	±	,,	2	1
	2*d*	+	·	+	+	·	·	+	+	·	±	,,	3	·
	2*e*	+	·	·	+	·	·	+	+	·	+	,,	2	1
	2*f*	+	·	+	+	+	·	+	+	·	+	,,	1	·
	2*g*	+	+	+	+	·	·	+	·	·	±	,,	2	·
	2*h*	+	+	+	+	·	·	+	+	·	±	,,	2	·
	2*i*	+	+	+	+	+	·	+	+	·	+	,,	7	·
	2*j*	+	+	+	+	·	+	+	+	·	±	Brevis to medius.	1	·
	2*k*	+	+	+	+	+	+	+	+	·	·	,,	1	·
	2*l*	·	+	+	+	+	·	+	·	·	±	Brevis.	·	1
	2*m*	·	+	+	+	·	·	+	·	·	+	,,	2	·
	2*n*	·	·	+	·	·	·	+	+	·	+	,,	·	1
	Totals	...	...	...	...	...	...	...	...	...			35	7

We may recapitulate the characters which induce us to regard a streptococcus as belonging to this group. Short chains in broth, which is rendered uniformly turbid. Frequent, but by no means constant, inability to grow on gelatin at 20° C. The common positive chemical reactions are clotting of milk, reduction of neutral red, and acid formation with saccharose, lactose, and often raffinose, but not with mannite. Reactions with the glucosides are often added, but inulin is rarely attacked. Virulence for rodents is feeble or absent, nor does this type possess much virulence for man—i.e., our cases are mostly terminal or chronic infections. We would repeat that streptococcus salivarius passes by insensible gradations into streptococcus fæcalis, the arbitrary mannite test being alone used here to separate them. Also that the distinction between this and streptococcus anginosus rests only on the somewhat shadowy character of length of chain and lesser virulence. We have now to give in detail the 33 cases in which this type has been found, 29 of our own and four noted by Gordon.

2*a*.—This form is regarded as the type in virtue of its frequency of occurrence in normal saliva, not in disease. We have met with it once only as a pathogenic agent in

a case of malignant endocarditis. Gordon found it once in the sputum of a case wrongly suspected as one of plague.

2b.—This variety, differing from the type only in the lack of a raffinose reaction, and almost as common as the type in normal saliva, we have found four times, twice only as a definitely pathogenic agent—namely, once in malignant endocarditis and once in a terminal septicæmia in pleuro-pneumonia (from the heart's blood and pleural fluid). Once we found it, probably as a saprophyte, in broncho pneumonia, and once as a chance terminal infection in a case of ruptured aorta.

2c.—This form has been met with three times, once as a terminal septicæmia in a fatal case of anthrax, once by Dr. J. G. Forbes at the Great Ormond-street Hospital as a terminal septicæmia in a case of tonsilitis in a hæmophilic child; Dr. J. H. Thursfield also met with it once associated with the gonococcus, in a case of vulvo-vaginitis at Great Ormond-street Hospital.

2d.—This differs from *2c* only in the lack of the raffinose reaction and in the addition, in two cases, of a coniferin reaction. We have found it three times, twice in malignant endocarditis and once in a gas-containing abscess.

2e.—We have met with this variant twice, once associated with the pnemococcus, in a suppurative arthritis of the shoulder following pneumonia, and once in cystitis. A culture of the "rheumatic diplococcus" which came indirectly into our hands from Dr. F. J. Poynton proved also of this variety.

2f.—This form, closely allied to *2c*, we have found once only in a cystitis associated with malignant disease of the bladder.

2g.—This variant differs from *2b* only in possessing an additional reaction with salicin. We have met with it once in malignant endocarditis and once in a suppurative peritonitis due to perforation of the intestine.

2h.—We have found this variant twice—once in peritonitis due to a perforated duodenal ulcer and once associated with bacillus coli communis in an empyema secondary to perforation of the appendix.

2i.—This is the variant of streptococcus salivarius which has been most frequently met with in disease. It resembles the type form, with the addition of glucoside reactions: the neutral red test is variable. Gordon found it in three cases of malignant endocarditis. We have met with it four times in the following cases: two terminal septicæmias (ruptured œsophagus and perforated duodenal ulcer); one peritonitis due to perforated gastric ulcer, and from the clot in one case of thrombosis of the iliac vein in tuberculous peritonitis.

2j.—This occurs in our series once only, in a case of malignant endocarditis.

2k.—This variant reacts positively with all Gordon's tests except mannite. We have found it once only in a case of malignant endocarditis.

2l.—This and the two following variants differ from the type in the absence of any power of clotting milk, but it seems most natural to include them here. We have found *2l* once only in a scarlet fever throat.

2m.—This differs from *2g* only in not clotting milk. We have met with it twice—in a peritonitis following ruptured gastric ulcer and in a terminal septicæmia in pulmonary tuberculosis and old suppurating fractured jaw.

2n.—This is a form, artificially included here, fermenting only saccharose, salicin, and coniferin but differing from the common horse-dung species in its short chains and in the vigour of its growth on gelatin at 20° C. We have found it only once in a suppurating sinus in an old tuberculous knee-joint.

3. Streptococcus anginosus.—The type which we include under this heading is, as we have explained, merely a long-chained form of salivarius, of somewhat greater virulence and resembling streptococcus pyogenes in its hæmolytic powers. It has been found 16 times as a true pathogenic agent but, in addition, 36 times in inflamed throats (scarlet fever, tonsillitis), rheumatism, and occasionally in other diseased conditions not certainly as the primary pathogenic agent. The chemical variants, which are very numerous, are described in Table IV. The pathological conditions under which we have found these various forms include 54 cases, but the bulk are from inflamed throats, scarlatinal and otherwise. Details are as follows:—

3a.—From the throat in three cases of scarlet fever.

3b.—Twice in malignant endocarditis and once from a septic finger in a house surgeon. Associated with disease we have found it twice in simple tonsillitis, twice in the scarlet fever throat, and once in the pericardial effusion of acute rheumatism.

3c.—Once only, from a scarlet fever throat.

3d.—Once in malignant endocarditis, once in simple tonsillitis, once in membranous stomatitis, and once in rheumatic pericarditis.

3e.—Twice from the throat in scarlet fever.

3f.—This form we have found in suppurative peritonitis secondary to appendicitis, in a mastoid abscess in otitis, and in a case of suppurative pachymeningitis and pyæmia. Gordon also records it once from an empyema. We have further met with it in two cases of rheumatic pericarditis, in the throat in one case of scarlet fever, and once from a sinus in a tuberculous knee-joint.

3g.—Once only, in the same case of appendicular suppuration as *3f*, of which this is a closely related variety.

3h.—Once only, in a septicæmia in otitis media.

3i.—From the throat in one case of scarlet fever.

3j.—Once in a septic finger following a bite, and once in a scarlet fever throat.

3k.—Once from the meninges as a terminal infection and also in two scarlet fever throats.

3l, 3m, 3n, and *3o.*—In each case once from a throat in scarlet fever.

3p.—Once in membranous stomatitis.

3q.—In simple tonsillitis: two different variants from the same case.

3r.—Once in membranous stomatitis.

3s.—Twice in cases of malignant endocarditis and once in rheumatic pericarditis.

3t.—Once in malignant endocarditis and once in purulent peritonitis, once also in the scarlet fever throat.

TABLE IV.

		Reactions with Gordon's nine tests.									Growth on gelatin at 20° C.	Morphology.	Frequency of occurrence.	
		Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.	Coniferin.	Mannite.			Definitely pathogenic.	Associated with disease.
Type form ...	*3a*	+	+	+	+	+	·	·	·	·	±	Longus.	·	3
	3b	+	+	+	+	·	·	·	·	·	·	,,	3	5
	3c	+	+	+	·	·	·	·	·	·	·	,,	·	1
	3d	+	·	+	+	·	·	·	·	·	±	,,	1	3
	3e	+	·	+	+	+	·	·	·	·	±	,,	·	2
	3f	+	·	+	+	·	·	+	±	·	±	,,	4	4
	3g	+	·	·	+	·	·	+	±	·	+	,,	1	·
	3h	+	·	·	+	+	·	+	·	·	+	Conglomeratus.	1	·
	3i	+	·	+	+	+	·	+	+	·	±	Longus.	·	1
	3j	+	+	+	+	·	·	+	·	·	·	,,	1	1
	3k	+	+	+	+	+	·	+	±	·	±	,,	1	2
	3l	+	±	·	+	+	·	·	±	·	·	,,	·	1
Variants by defect and excess.	*3m*	+	·	+	+	·	+	·	·	·	·	,,	·	1
	3n	+	·	+	·	·	+	·	·	·	·	,,	·	1
	3o	·	+	+	·	+	·	·	·	·	·	Medius.	·	1
	3p	·	+	+	+	·	·	·	+	·	+	,,	·	1
	3q	·	±	+	+	·	+	±	·	·	·	Longus to medius.	·	2
	3r	·	+	·	+	·	+	+	+	·	+	Medius.	·	1
	3s	·	·	+	+	+	·	·	·	·	·	Longus.	2	1
	3t	·	·	+	+	+	·	+	±	·	+	,,	2	1
	3u	·	·	+	+	+	·	·	+	·	—	—	·	1
	3v	·	·	+	·	+	·	+	+	·	—	—	·	1
	3w	·	·	+	+	+	+	·	·	·	·	Longus.	·	1
	3x	·	·	+	·	·	+	·	·	·	—	,,	·	1
	3y	·	·	+	+	·	+	·	·	·	·	,,	·	1
	3z	·	·	+	·	·	+	+	·	·	·	,,	·	1
Totals		...	...	...	...	...	...	...	...	...	...	...	16	38

3*a*.—Once (scantily) from the heart's blood in acute rheumatism.

3*c*.—Once in rheumatic pericarditis.

3*w*.—Once as a scanty terminal infection in a ruptured aorta.

3*x* and 3*y*.—Once in the throat in scarlet fever.

3*z*.—Once from the mastoid antrum in otitis, no pus being present.

4. *Streptococcus fæcalis*.—We have met with only 12 of the 29 variants of this type in our examination of diseased conditions. Attention must again be called to the fact that, though the type forms of this and of streptococcus salivarius (as judged by relative frequency of occurrence in fæces and saliva respectively) are perfectly distinct, they are nevertheless connected by many transitions. We here use the mannite reaction as an artificial though useful distinction. The following is a tabular view of the variants we have found in disease.

TABLE V.

		Reactions with Gordon's nine tests.									Growth on gelatin at 20° C.	Morphology.	Frequency of occurrence.	
		Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.	Coniferin.	Mannite.			Definitely pathogenic.	Associated with disease.
Type form ...	4*a*	+	+	+	+	·	·	+	+	+	+	Brevis.	3	1
Variants chiefly by defect.	4*b*	+	·	+	+	+	+	·	+	·	·	Longus	2	·
	4*c*	+	·	+	+	·	·	·	·	+	·	Brevis.	·	1
	4*d*	+	·	+	+	·	·	+	+	+	+	Medius.	1	·
	4*e*	+	·	·	+	·	·	+	·	+	+	,,	1	·
	4*f*	·	+	·	+	·	·	+	+	+	+	,,	1	·
	4*g*	·	+	+	+	·	·	+	+	+	+	Brevis.	1	·
	4*h*	·	·	+	·	+	+	+	+	+	+	,,	·	1
	4*i*	·	·	+	·	+	·	+	+	+	·	Medius.	1	·
	4*j*	·	·	+	+	+	·	+	+	+	·	Brevis.	1	·
	4*k*	·	·	+	+	·	·	+	+	+	+	Longus.	1	·
	4*l*	·	·	+	+	·	·	+	·	+	–	Brevis.	1	·
Totals		...	...	...	...	...	...	...	...	...			13	3

There is a variety of the type form, 4*a*, which rapidly liquefies gelatin. This variety is recorded 11 times by Gordon and Houston from normal fæces, air, dust, &c. We have never met with it in human disease and it is therefore excluded from the foregoing table; but we have once met with it in disease in the mouse in circumstances which are particularly instructive. A mouse had been inoculated with the pneumococcus. It was found dead on the second day and a cultivation from its peritoneum yielded on agar at 37° C. what appeared a pure culture of the pneumococcus. But on testing the organism recovered it was found to be no pneumococcus at all, but a characteristic streptococcus fæcalis, rapidly liquefying gelatin. There can be little doubt that a secondary infection from the intestine by this very hardy organism had altogether ousted the pneumococcus. Had the result not been controlled by Gordon's routine tests some very surprising conclusions might have been drawn. The case is a warning of how readily a facultative parasite from the intestine may usurp the place of the true pathogenic agent and of how dangerous it may be to trust to animal passage alone for preserving the purity of any given pathogenic species. The following are details of the human cases in which we have met with streptococcus fæcalis and its variants.

4*a*.—The type form has been met with once in malignant endocarditis and twice in cystitis. Further, a specimen sent to Dr. W. Bulloch by Dr. J. M. Beattie of Edinburgh as a typical "diplococcus rheumaticus" and kindly sent on to us proved to be this, the commonest intestinal streptococcus.

4*b*.—This occurs twice in our series, in two cases of malignant endocarditis.

4*c*.—We have met with this once only, from the urethra in a case of chronic gleet, probably as a mere saprophyte.

4*d*.—Once only in a suppurative meningitis and septicæmia in a case of otitis media.

4*e*.—Once only, in malignant endocarditis.

4*f*.—Once only, in suppurating cholesteatoma of the mastoid.

4*g*.—Once in suppurative meningitis and septicæmia occurring in otitis media.

4*h*.—Once in membranous stomatitis.

4*i*.—Once in cystitis.

4*j*.—Once in a case of septicæmia secondary to a parametritic abscess.

4*k*.—Once in cystitis.

4*l*.—Once in a septicæmia secondary to acute otitis media.

5. *Pneumococci*.—Under the term pneumococci we include members of the streptococcus group possessing a well-defined capsule. Whether these all belong to a single species is an open question. The organism described by Schottmüller and others as streptococcus mucosus capsulatus may be distinct, but we are unable to express any opinion on this point, not having recognised that organism in our series. In our experience the capsuled streptococci present, in broth culture, very short chains, rendering the broth uniformly turbid; but in the condensation fluid of agar cultures the chains are often of considerable length. Even in the tissues they are not invariably diplococci; chains of four, six, and even more individuals are sometimes seen. The organism almost invariably refuses to grow on gelatin at 20° C., though feeble growth may occur at 22° C. or higher. It has little resistance outside the body and is difficult to keep alive for long in cultures. When recently isolated it is highly pathogenic for rodents.

The chemical types into which the pneumococci can be differentiated by Gordon's tests are apparently 19 in number, but we regard this as largely owing to the difficulty often experienced in getting the coccus to grow in the culture medium. Negative reactions are of much less significance here than with the more hardy streptococci. The actual results we have obtained with the 34 strains we have tested have been as follows:—

TABLE VI.

		Reactions with Gordon's nine tests.									Growth on gelatin at 20° C.	Morphology.	Frequency of occurrence.	
		Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.	Coniferin.	Mannite.			Definitely pathogenic.	Associated with disease.
Type form ...	5*a*	·	·	+	+	+	·	·	·	·	·	Brevis.	8	—
Variants.	5*b*	·	·	+	+	+	·	+	·	·	Slight.	—	1	—
	5*c*	·	·	·	+	+	·	·	·	·	—	—	1	—
	5*d*	·	·	+	·	·	·	·	·	·	·	Brevis.	2	—
	5*e*	·	·	+	·	·	·	+	·	·	—	,,	1	—
	5*f*	·	·	·	+	·	·	·	·	·	Slight.	,,	2	—
	5*g*	·	·	·	·	+	·	·	·	·	Slight.	,,	1	—
	5*h*	·	·	·	·	·	·	·	·	·	·	—	1	—
	5*i*	·	·	+	+	+	+	·	·	·	—	—	1	—
	5*j*	·	·	+	+	+	+	·	·	·	Slight.	Brevis.	1	—
	5*k*	·	·	+	+	+	+	+	·	·	—	,,	1	—
	5*l*	+	·	+	+	+	·	·	·	·	±	,,	6	—
	5*m*	+	·	+	·	+	·	·	·	·	·	,,	1	—
	5*n*	+	·	·	·	+	+	·	·	·	·	—	1	—
	5*o*	+	·	·	+	+	+	·	+	·	·	Brevis.	1	—
	5*p*	+	·	+	+	·	+	·	·	·	—	,,	1	—
	5*q*	+	+	·	+	·	·	·	·	·	Slight.	,,	1	—
	5*r*	+	·	+	+	+	+	+	·	·	·	,,	2	—
	5*s*	·	·	+	+	·	·	·	·	+	+	,,	1	—
Totals		...	...	...	...	...	...	...	...	...			34	0

The actual cases from which we have isolated these 34 specimens are as follows.

5*a*.—One case of "idiopathic" peritonitis in Bright's disease; three cases of pericarditis secondary to pneumonia; one case of ordinary pneumonia; one case of empyema; one case of endocarditis and pneumonia, probably as a terminal infection; and one case in which the record of the nature of the disease is missing.

5b.—One case of malignant endocarditis from the blood during life.

5c.—One case of pericarditis in pneumonia.

5d.—One case of septic arthritis and one case of early purulent meningitis in broncho-pneumonia.

5e.—One case of terminal septicæmia in lymphadenoma.

5f.—One case of suppurative pericarditis and empyema and one case of empyema.

5g.—One case of septicæmia in pneumonia.

5h.—One case of pulmonary infarct in typhoid fever.

5i.—One case of acute pleurisy and pericarditis.

5j.—One case of purulent meningitis.

5k.—One case of septicæmia in early empyema and broncho-pneumonia.

5l.—One case of septicæmia in empyema and peritonitis; one case of peritonitis; one case of suppurative arthritis and septicæmia; one case of pneumonia; and two cases of septicæmia in pneumonia.

5m.—One case of septicæmia and meningitis.

5n.—One case of empyema.

5o.—One case of primary purulent pericarditis.

5p.—One case of terminal meningeal infection in tuberculous meningitis and pneumonia.

5q.—One case of empyema.

5r.—One case of empyema following pneumonia and one case of terminal septicæmia in icterus gravis.

5s.—One case of pyæmia in mastoid disease. This form of pneumococcus differs so widely from the preceding that it may well be a distinct species. Morphologically it was an ordinary capsuled diplococcus, but its reactions with Gordon tests (tested twice from the blood during life, from the organs after death, and after six months' culture in gelatin, always with the same result) are quite peculiar. Moreover, it grew vigorously on gelatin at 20° C., and though it killed a mouse in three days in ordinary pneumococcal fashion, it produced when subcutaneously injected into a rabbit's ear a condition resembling chronic erysipelas.

Although the apparent variations are numerous, the explanation is in many cases failure of the type reactions from defective growth. Broth made with Liebig's extract seems less favourable to the growth of the pneumococcus than of the other streptococci. The type reactions are clearly those with saccharose, lactose, and raffinose. The raffinose reaction is specially well marked and is usually the earliest to appear. To these the clotting of milk and the inulin reaction are not infrequently added. The glucosides are rarely attacked and mannite never, save by the aberrant form *5s*; neutral red is very rarely reduced.

P. H. Hiss has put forward the inulin reaction as diagnostic between the pneumococci and the streptococci of the pyogenes group.[1] Less than 25 per cent. of our series of pneumococci fermented inulin, and we have recorded above a small number of pathogenic streptococci, certainly distinct from the pneumococcus group, which do ferment it. One reason for the discrepancy may lie in the difference in the medium employed. Hiss used serum water with 1 per cent. of inulin.

We have now put forward in detail the results of our examination of 228 specimens of streptococci and pneumococci, associated with disease in man, in the light of Gordon's tests. The records are as careful and accurate as we have been able to make them, and may have some permanent value, being, so far as we are aware, the first extensive series of cases published on these lines. Such value as they may possess is quite independent of the somewhat arbitrary manner in which we have grouped our results. The five types which we have ventured to put forward under definite names may well be susceptible of simplification or modification with wider knowledge. We do not assert that they are absolutely defined species; at the most they seem to be species in the making, connected by transitional forms; but inasmuch as the variations do exist it appears justifiable to express them by suitable terms.

It will be appropriate here to refer to the classification of pathogenic streptococci put forward by Schottmüller.[2] It is essentially based on a single character—viz., growth in blood-agar plates. Two parts of sterile human blood are mingled with five parts of ordinary agar. Schottmüller claims that three sorts of streptococci can be sharply differentiated by this means. 1. Streptococcus pyogenes vel. erysipelatos, showing a clear zone of hæmolysis around each colony, or, if the colonies be closely set, a general brownish discoloration of the plate. This sort, he says, does not clot milk and is very virulent. 2. Streptococcus mitior vel. viridans, which gives rise to a greenish colour about the colonies, is less actively virulent, and often clots milk. 3. Streptococcus mucosus, which shows capsuled forms, and gives a viscid growth on the plates. It is evident that Schottmüller's streptococcus pyogenes corresponds with ours but may include the hæmolytic forms we have on other grounds classed as streptococcus anginosus. His streptococcus mitior or viridans probably corresponds in general with our streptococcus salivarius and fæcalis, while his streptococcus mucosus may be in part identical with the forms we have included under the pneumococci. He has relied, practically, on a single character; we have striven to take all characters into account and hence have been led to differentiate further.

[1] Journal of Experimental Medicine, vol. vi., p. 329.
[2] Münchener Medicinische Wochenschrift, 1903, No. 20.

V. A Consideration of Certain Important Diseases Associated with Streptococcal Infections in Relation to the Foregoing Types.

We now propose to take certain definite diseases and to consider how far there is any correspondence between the pathological process or its localisation and the type of streptococcus concerned.

(a) Suppuration.—We have examined 64 cases in which the disease process was suppurative in character. Two types here show an overwhelming predominance—viz., streptococcus pyogenes and the pneumococcus. The figures are—

Streptococcus pyogenes	30 cases
,, salivarius	5 ,,
,, anginosus	8 ,,
,, fæcalis	2 ,,
Pneumococcus	19 ,,
	64 cases

In ordinary abscesses and suppurating wounds, of which we have examined 18, the typical streptococcus pyogenes, 1*a*, has been present 12 times, the variants 1*d*, 1*g*, 1*k*, 1*i* (and 1*j*), and 1*m* once each, and streptococcus salivarius (variant 2*d*) once. The last-named was in a peculiar gas-containing abscess. It is interesting to note the relation of the salicin reaction in streptococcus pyogenes to suppurative processes; the variant 1*b*, lacking this reaction, has not been met with once in abscess. The mannite-fermenting varieties of streptococcus pyogenes seem also only occasionally associated with suppuration. We have investigated eight cases of empyema. Only one of these has been due to streptococcus pyogenes, five to the pneumococcus, one to a form of streptococcus salivarius (2*h*)—(a case secondary to appendicitis)—and one to streptococcus anginosus (3*f*). Of eight cases of suppurative pericarditis two have been referable to streptococcus pyogenes and six to the pneumococcus. Of seven cases of suppurative peritonitis two have been due to streptococcus pyogenes; both were cases following on an abdominal section. Two were due to the pneumococcus, one to a form of streptococcus salivarius (2*g*), and one, an appendix case, to streptococcus anginosus (3*f*), and one to 3*f*. We have examined seven cases of suppurative arthritis and pyæmia. Four were due to streptococcus pyogenes (two to the type 1*a* and two to the variants 1*g* and 1*m*). Two were pneumococcal cases and one was associated with a mixed infection by the pneumococcus and a form of streptococcus salivarius (2*e*). Six cases of suppurative meningitis were examined. One only, and that a case following trephining, was due to streptococcus pyogenes (1*g*). Three were pneumococcal cases. One, a pachymeningitis with pyæmia, was due to streptococcus anginosus (3*f*), and one to a form of streptococcus fæcalis (4*d*). Purulent otitis occurs four times in our list. Gordon found streptococcus pyogenes once in acute scarlatinal otitis. The other three cases were suppurating mastoids, and were associated respectively with streptococcus anginosus (3*f*), streptococcus fæcalis (4*f*), and the aberrant pneumococcus (5*s*). The remainder of the instances of suppuration are miscellaneous cases which need not be detailed here.

(b) Cystitis.—We have examined six strains of streptococci from cystitis, with pyuria, which we have not included in the series of suppurations. Sometimes the streptococci have been present alone, sometimes associated with bacillus coli. Once they remained in a persistent pyuria after the associated B. coli had disappeared. We have not met with

streptococcus pyogenes from the bladder. Two of our specimens have been the type form of streptococcus fæcalis (4*a*) and two variants of this (4*i* and 4*k*). Two have been forms of streptococcus salivarius (2*e* and 2*f*), but both these types were found frequently by Houston in the fæces. We see no reason for doubting that the streptococci in cystitis are usually, like the bacillus coli in this disease, of intestinal origin.

(*c*) *Erysipelas and cellulitis.*—Two cases of cutaneous erysipelas in which we have examined the serous fluid in the bullæ have each yielded a pure culture of the type form of streptococcus pyogenes 1*a*. Another case, with pyæmia, yielded the mannite-fermenting form (1*k*), while from the heart's blood of two fatal cases the mannite-fermenting form (1*l*) has been isolated, once by us and once by Gordon. These cases confirm the view now generally held that the streptococcus of erysipelas is identical with streptococcus pyogenes. Four cases of cellulitis have yielded in our hands streptococcus pyogenes—the type (1*a*)—twice, and the variants 1*i* and 1*j* once each. No other form than streptococcus pyogenes has thus been met with in erysipelas and cellulitis.

(*d*) *Serous effusions.*—Gordon met with streptococcus pyogenes (variant 1*c*) once in a fatal case of pleural effusion. We have twice met with mannite-fermenting variants of pyogenes (1*k* and 1*a*) in serous pleural effusions. We once met with streptococcus anginosus (variant 3*k*) in a case of serous meningitis.

(*e*) *Peritonitis, non-suppurative.*—We have already mentioned seven cases of suppurative peritonitis. We have also examined seven cases in which there was no evident suppuration, though it is hard to draw the line between suppurative and non-suppurative forms, especially when they are acutely fatal cases. Of these latter seven cases four have been associated with the presence of variants of streptococcus pyogenes (1*g*, 1*h*, 1*i*), and three, all cases of perforation (gastric and duodenal), with variants of streptococcus salivarius (2*h*, 2*i*, 2*m*).

(*f*) *Septicæmia.*—We have examined 44 strains of streptococci obtained from septicæmic conditions, six of them being puerperal cases. Many of the cases were certainly mere terminal infections which had not been suspected during life. They are none the less interesting on this account, for, as we shall show, many of them are invasions by common saprophytes of the alimentary canal and they constitute good evidence of the readiness with which such invasion occurs. It is our belief that this process of invasion must constantly be going on, but that in health the normal resistance of the body is such as to check any multiplication and bring about the speedy destruction of the intruders. The evidence of this is, however, much more apparent in the case of malignant endocarditis, to be mentioned later. It will be convenient to divide our cases of septicæmia into three groups. The vast majority of cases are secondary, but in many instances the primary disease is a local streptococcal affection, the irruption into the blood stream being an event occurring sometimes but shortly, though at other times many days or even weeks, before death. There are other instances in which the primary disease has nothing to do with streptococcal infection but in which this infection occurs as a secondary event that may indeed hasten the final issue but is in a measure accidental and often not recognised during life. One cannot, it is true, always discriminate certainly between these two classes; nevertheless, a rough classification may be based upon the nature of the primary disease. It is convenient, moreover, to keep the puerperal cases separate.

(1) *Puerperal septicæmias.*—We have examined six strains of streptococci from as many puerperal cases. The organism has always proved to be streptococcus pyogenes, twice the type 1*a*, twice the variant 1*c*, lacking the salicin reaction, and twice the mannite-fermenting form 1*k*.

(2) *Septicæmias traceable with more or less probability to a primary disease due to streptococcal infection.*—Our series of this kind, including four recorded by Gordon, numbers 24 cases; 13 of these are referable to streptococcus pyogenes and its variants, one to streptococcus salivarius, one to streptococcus anginosus, two to streptococcus fæcalis, and seven to the pneumococcus. The cases are described in Table VII.

It will be seen how uniformly the blood infection is by streptococcus pyogenes in wounds, erysipelas, and cellulitis. It is natural again that the pneumococcus should predominate in pneumonias and empyemata.

TABLE VII.

Primary affection.	No. of cases.	Type of streptococcus.
Wounds, septic fingers, &c. ...	5	1*a* in all cases.
Cellulitis	4	1*a*, 1*c*, 1*c*, 1*k*.
Erysipelas	3	Once 1*c*, twice 1*i*.
Pleurisy	1	1*c*.
Otitis	3	3*k*, 4*i*, 5*e*.
Parametritis	1	4*j*.
Pneumonia and empyema ...	6	2*b*, 5*g*, 5*k*, and 5*l* thrice.
Meningitis	1	5*m*.
(Unrecorded)	2	Both 1*a*.

(3) *Septicæmias occurring in affections not primarily of streptococcal origin.*—Our list, including one of Gordon's cases, numbers 14, and of these streptococcus pyogenes accounts for seven, streptococcus salivarius for five, and the pneumococcus for two.

Streptococcus pyogenes	Type 1*a*	occurred in	two cases of	cirrhosis of the liver.
,,	,,	,,	,,	one case of carcinoma recti.
,,	,,	,,	,,	one case of lupus erythematosus.
,,	,,	,,	,,	one case of syphilitic disease of the aorta.
,,	,,	variant 1*c*	,,	one case of fatal burns.
,,	,,	,, 1*k*	,,	one case of gastro-enteritis.
,,	salivarius	,, 2*c*	,,	one case of fatal anthrax and one case of tonsillitis.
,,	,,	,, 2*f*	,,	one case of ruptured œsophagus and one case of ruptured duodenal ulcer.
,,	,,	,, 2*m*	,,	one case of pulmonary tuberculosis with fractured jaw.
Pneumococcus	... ...	,, 5*e*	,,	one case of lymphadenoma.
,,	... ...	,, 5*r*	,,	one case of icterus gravis.

Even in this group streptococcus pyogenes plays a very important part and in all groups, as compared with the salivary and fæcal types, it seems better able to get an early hold on the tissues and so to conduce more directly to the fatal event. The salivary and fæcal types have appeared to us more often as strictly terminal, sometimes probably even agonal invasions. This would accord with all that we now know of the better-developed parasitism of streptococcus pyogenes; it is a better fighter than the other sorts, which can only gain a foothold when the body is much weakened in its resistance.

(*g*) *Malignant endocarditis.*—Streptococci are by far the commonest infecting agents in this disease, and we have paid special attention to all the strains which we could obtain. We venture to think that here our results are of considerable importance. They will be dealt with more fully in a later communication. Excluding two cases in which it was likely that the organisms obtained were merely terminal infections, we have examined 21 cases of undoubted malignant endocarditis due to streptococci and to these we add three cases published by Gordon. Of these 24 cases we find two only due to streptococcus pyogenes, 11 to streptococcus salivarius, six to streptococcus anginosus, four to streptococcus fæcalis, and one to the pneumococcus. The distribution of the variants is described in Table VIII.

This overwhelming preponderance of salivary and fæcal types is very striking. Many of the forms are absolutely identical in all their reactions with the commonest saprophytic streptococci of the mouth and gut, and the rest are closely related. Streptococcus pyogenes does, indeed, occur in malignant endocarditis, as does the pneumococcus, but the cases in which these occur are amongst the gravest and most rapidly fatal cases. The commonest clinical form of malignant endocarditis, ofttimes having an insidious onset and running a slow course over many weeks or even months, appears definitely due to infection of the endocardium by streptococci of relatively feeble pathogenic power, usually non-virulent upon the mouse, and derived from the saprophytic flora of the alimentary canal. It is no question here of mere terminal

TABLE VIII.

—		Malignant endocarditis.	Occurrence in saliva and fæces (Gordon and Houston).
Streptococcus pyogenes	1c	1 case.	Not uncommon in saliva.
,, ,,	1d	1 ,,	—
,, salivarius	2a	1 ,,	Commonest salivary type.
,, ,,	2b	2 cases.	Common in saliva and fæces.
,, ,,	2d	2 ,,	,, ,, ,,
,, ,,	2g	1 case.	Occasional in saliva and fæces.
,, ,,	2i	3 cases.	In saliva; very common in fæces.
,, ,,	2j	1 case.	Once in fæces.
,, ,,	2k	1 ,,	Twice in saliva.
,, anginosus	3b	3 cases.	Common in saliva and fæces.
,, ,,	3g	2 ,,	Occasionally in saliva.
,, ,,	3l	1 case.	Once in saliva, once in fæces.
,, fæcalis	4a	1 ,,	Commonest fæcal type.
,, ,,	4b	2 cases.	Once in fæces.
,, ,,	4c	1 case.	—
Pneumococcus	5b	1 ,,	—

infection. In most of our cases the organism has been cultivated from the blood several weeks or occasionally several months before death, the results being confirmed by post-mortem cultures. We shall recur later to the importance of these facts in relation to treatment but we may here point out how they explain the frequent absence for a long time of symptoms proportionate to the grave nature of the disease and the chronic course of many of these cases. The scanty or absent leucocytosis in many cases and the occasional absence of fever, as noted in two of our series, are similarly explained. The facts we have stated also throw light upon the post-mortem observation so often made in malignant endocarditis that the infarcts present in various organs are rarely suppurative. This circumstance is often brought forward as an argument in favour of the "rheumatic" nature of the endocarditis in such cases and the term "malignant rheumatism" has been used for them. Our investigations tend to show that these cases of malignant endocarditis have nothing to do with rheumatism save in so far as they usually occur in patients whose heart valves have been damaged by previous attacks of acute or subacute endocarditis, most often rheumatic in nature. In the majority of cases there has been a complete interval, generally of some years' duration, between the rheumatic phase and the phase of streptococcal infection. Perhaps owing to some defect of resistance on the part of the patient, these feebly parasitic streptococci succeed in making good their foothold upon the cicatrised valves and form a nidus of growth from which the blood stream washes off the organisms into the circulation. It may be that the very lowness of the virulence of these habitual saprophytes of the alimentary canal accounts for the lack of efficient resistance on the part of the patient, there being no adequate stimulus to call forth the defensive mechanisms necessary for the destruction of the cocci. However this may be, the data which we have obtained as to the nature of the infecting agents in this not uncommon and most serious disease must be of very great interest.

(*h*) *Scarlet fever.*—The etiology of scarlet fever is as yet an unsolved problem. It may confidently be asserted that the graver symptoms of the disease, and frequently indeed the fatal issue, are associated with streptococcal infection. There is no disease in which secondary infections by streptococci play a more important part. But it is not yet conclusively proved that a streptococcus is the primary cause of the disease. Klein, relying upon the results which he obtained in the outbreak traced to a dairy farm at Hendon in 1886, and upon his examination of the blood in 11 human cases, claimed a milk-clotting streptococcus as the primary cause of scarlet fever, naming it *streptococcus scarlatinæ*. More recently Kurth has called attention to a streptococcus occurring in the throat in this disease, which he calls *streptococcus conglomeratus*. Still more recently Klein and Gordon have re-investigated the question and claim that a conglomerate streptococcus, clotting milk, pathogenic to the mouse in 10–14 days, and, according to Gordon, showing characteristic bacillary forms on serum, is always to be found in the scarlatinal, though not in the normal throat. All this was before Gordon had introduced his series of chemical tests; in these investigations the more precise data for identifying the streptococcus in question are hence lacking. In post-mortem examinations upon fatal cases of scarlet fever, Gordon found in the heart blood and viscera now the streptococcus scarlatinæ, now the streptococcus pyogenes in pure culture, and more often a double infection by the two. But until typical scarlet fever has been produced in the human subject by infection with a pure culture of the "streptococcus scarlatinæ" it cannot be said that crucial proof has been furnished as to the etiological relation of this organism with the disease.

In these circumstances it appeared to us eminently desirable to investigate the scarlatinal throat by the aid of Gordon's tests and we have had opportunity of doing so in eight undoubted cases and one doubtful case of the disease. The method adopted was to make agar plates from a dilution of the tonsillar secretion in the acute stages of the disease and to subcultivate the varied streptococcal colonies which arose, so far as they appeared different under a low power of the microscope (Zeiss A; Leitz 3). We would here observe that this examination of colonies under a low power is of great help in differentiating various types. Each strain thus isolated was then submitted to Gordon's nine tests and its morphology and capacity for growth on gelatin at 20° C. were noted. Our results have been so conflicting that we are unable to draw any definite conclusion. If any streptococcus is the cause of scarlet fever it is to be found either in the streptococcus pyogenes group or in the streptococcus anginosus group, as will be seen from the following table of our results, in which we have not included more than one colony of each variant from the same throat. We have met with streptococcus pyogenes and its variants 11 times and Gordon found it once. Streptococcus salivarius (an aberrant form) occurred once only, while streptococcus anginosus and its variants were found 20 times. Streptococcus fæcalis was not met with at all, nor was the pneumococcus. The variants found were:—

Streptococcus pyogenes.—Type 1*a*, four times; 1*b*, once; 1*c*, three times; 1*f*, once; 1*h*, once; 1*i*, once; and 1*k*, once (Gordon).

Streptococcus salivarius.—Variant 2*l*, once.

Streptococcus anginosus.—Type 3*a*, three times; 3*b*, twice; 3*c*, once; 3*e*, twice; 3*f*, 3*i*, 3*j*, once each; 3*k*, twice; and 3*l*, 3*m*, 3*n*, 3*o*, 3*t*, 3*x*, and 3*y*, once each.

It is thus plain that in the scarlet fever throat, pyogenes and anginosus divide the honours between them, practically to the exclusion of other kinds. It is a very striking thing, when one considers the predominance of short-chained forms in normal saliva, to find even in the very earliest stage of the scarlatinal throat (first and second days) long-chained forms so completely taking their place.

Meanwhile we have to consider whether streptococcus pyogenes or streptococcus anginosus can claim the greater share in the scarlatinal process. Anginosus seems the more frequent in the throat in scarlet fever and has the merit of clotting milk, thus bringing it into line with Klein's streptococcus scarlatinæ; it differs, however, from the latter in its frequent incapacity for growth on gelatin at 20° C. Further, one may on general grounds almost exclude so common an agent of suppuration as streptococcus pyogenes from the primary causation of a specific communicable disease such as scarlet fever. For these reasons it seems likely that if scarlet fever is a streptococcal disease some form of streptococcus anginosus is the causal agent and that streptococcus pyogenes merely plays the part of a secondary infecting agent, though one of the highest importance, frequently overshadowing the primary cause.

On the other hand, streptococcus anginosus is met with in conditions other than scarlatinal, as will have been seen from our table of cases, while we have met with cases of scarlet fever in which we have failed to isolate streptococcus anginosus from the throat. A girl of 13 years developed typical scarlet fever in hospital, having been infected from a nurse. Agar plates prepared from a dilution of her faucial secretion on the third day of the disease yielded an abundant and absolutely pure culture of streptococcus pyogenes, type 1*a*. We may also narrate the following puzzling series of cases. A woman (A) admitted for confinement to a maternity hospital was attended by a nurse (B) who developed tonsillitis on the day the patient was delivered, and three days later was notified as a case of scarlet fever. The woman (A) developed puerperal fever and on the sixth day after her

confinement her blood yielded a pure culture of streptococcus pyogenes, type 1*a*. She was transferred to the Great Northern Central Hospital where she died; the necropsy showed a purulent perimetritis. Three days after her death the nurse (C) who had attended her at the Great Northern Central Hospital developed scarlet fever and 12 streptococcal

FIG. 1.

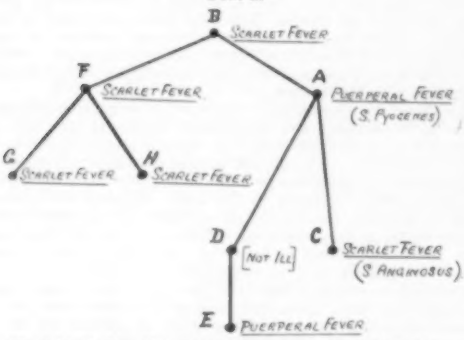

Chart illustrating the succession of cases described in the text. (There is no *proof* that patient E became infected as the result of being nursed by D.)

colonies, selected from an agar plate prepared from her tonsillar secretion, proved all to belong to two variants of streptococcus anginosus, no pyogenes being found. Meanwhile, at the maternity hospital a nurse (D) took the place of nurse (B) and for a day or two before her removal to the Great Northern Central Hospital attended the patient (A). Ten days later nurse (D), who herself remained well, attended a confinement case (E) in the district; the woman (E) died from septicæmia on the fifth day after delivery. Nurse B's room, having been disinfected by the sanitary authority, was scrubbed by a charwoman (F). On the following day the charwoman was ill, but the case was not recognised as scarlet fever till a day or two later, when her two children (G and H) developed typical scarlet fever and all three were removed to a fever hospital. It is much to be regretted that we had not opportunity for studying the streptococci from a larger number of these cases, but the series well illustrates the close connexion between scarlet fever and definitely streptococcal septicæmia and also the extreme difficulty of asserting that scarlet fever is due to any one recognisable variety of streptococcus.

Looking at the matter from a general standpoint we recognise three possible views which may be taken as to the nature of scarlet fever. 1. The disease may be of primary streptococcal origin but not due to any one specific streptococcus. Such a view would explain the occurrence of scarlet fever after burns and surgical operations, without known exposure to specific infection. It would be in harmony with the occurrence of scarlatiniform rashes in septic conditions due to streptococci (septicæmias, &c.). It would be in accord with the varied nature of our results in the application of Gordon's tests to streptococci from the scarlatinal throat. But it is a view very difficult to maintain in face of the strong clinical evidence that scarlet fever habitually breeds true and spreads from case to case as a specific entity. 2. The disease may be primarily due to a specific streptococcus, as maintained by Klein, Gordon, Kurth, and others. Much may be said in favour of this view, and if it be maintained the specific organism will in all probability be found within the limits of the group we have described as streptococcus anginosus. Nevertheless our results, such as they are, fail to indicate any one variant as constant in, or peculiar to, the scarlet-fever throat. A much larger series of cases must be examined before the matter can be considered settled on such lines as these. 3. Scarlet fever may be primarily due to some non streptococcal cause, perchance ultra microscopic. Mallory has, somewhat unconvincingly, suggested a protozoan organism (cyclaster scarlatinalis) found by him in the skin.[3] Even on such a view streptococci might still retain an overwhelmingly important rôle as causes of the graver symptoms and complications of the disease and antistreptococcal therapy would remain perhaps the most important element in treatment. The sad fate of Salmon and Smith's hog cholera bacillus, in the light of recent American researches,[4] may serve as a warning of how easily a secondary invader may pose as the true cause of an infective disease. Sanarelli's bacillus icteroides in yellow fever is another case in point.

(i) *Acute rheumatism.*—Our data as regards rheumatic fever are not very numerous and are by no means convincing. In view of the strong claims put forward by Poynton and Paine for the diplococcus rheumaticus—an organism which from all accounts appears referable to the streptococcus group—we have made a number of efforts to isolate it from the heart's blood, pericardial fluid and cardiac vegetations of fatal cases of acute rheumatism, using various culture media for the purpose. In the majority of cases our results have been wholly negative; the cultures have remained sterile. This, we gather, has also been the experience of several other observers. In two or three cases, however, we have obtained a scanty growth of streptococci; sometimes from the pericardium, less often from the heart's blood. On testing these they did not for the most part prove in any way peculiar and they were various in their reactions. In one case four or five different forms were isolated from the pericardium. The varieties isolated have been as follows:—

Streptococcus pyogenes.—Variant 1*c*, twice.
Streptococcus anginosus.—Variant 3*b* and 3*d*, once each.
" " Variant 3*f*, twice.
" " Variant 3*e*, 3*a*, and 3*c*, once each.

These, in our opinion, may well have been of the nature of terminal infections, having no necessary relation with the disease. We have entirely failed to find any one type of streptococcus which we could justly associate with rheumatic fever.

We have had two opportunities of testing specimens furnished to us as the genuine "rheumococcus." One was received indirectly from Dr. Poynton and proved on testing to be the variant of streptococcus salivarius which we have classed as 2*c*—a very common fæcal type met with 20 times by Houston. We regret that other specimens kindly promised us by Dr. Poynton have not reached us in time for incorporation with the results here published. Our other opportunity was a "rheumococcus" sent to Dr. Bulloch by Dr. Beattie of Edinburgh and courteously sent on to us. It proved to be streptococcus fæcalis type 4*a*—the commonest of all intestinal streptococci. Another specimen from a case of chorea kindly sent us by Dr. Paine was unfortunately dead and could not be tested. We hope to have fuller opportunities of testing specimens of this organism in the near future.

The fact that the two "rheumococci" which we have tested are amongst the commonest intestinal saprophytes does not in any way disprove their possible etiological relation with rheumatism. But it does raise the question, especially in connexion with our own almost negative results in this disease, whether the organisms which Poynton and Paine and others have cultivated may not have been present as incidental terminal infections or, when isolated at some considerable interval before death, whether the coccus may not have been (as already suggested) the cause of a malignant endocarditis. The results which we have already set forth as regards malignant endocarditis must be taken into account in weighing the value of the animal experiments which have been put forward by Poynton and Paine in support of their views. It may be that various saprophytic or feebly virulent streptococci from the alimentary canal would produce endocarditis and even polyarthritis when injected intravenously in rabbits. No sufficient body of evidence is forthcoming on this point. It may be, again, that the primary cause of acute rheumatism is not streptococcal, perhaps not even bacterial, but that certain of its manifestations—e.g., endocarditis—may be due to a secondary invasion by streptococci of low virulence derived from the mouth or intestine. The problem is fully as complex as is that of scarlet fever and is apparently as far from final solution.

(To be concluded.)

[3] Journal of Medical Research, vol. x., No. 4, p. 483.

[4] Dorset, Bolton, and Bryde. Twenty-first Annual Report of the U.S. Bureau of Animal Industry, pp. 138–168.

LONG SERVICE OF A POOR-LAW MEDICAL OFFICER.—At a recent meeting of the Honiton (Devon) board of guardians a proposition was unanimously carried placing on record the board's high appreciation of the services rendered by Dr. T. H. S. Pullin, district medical officer of Sidmouth, and thanking him for the kind and courteous manner in which he had carried out his duties for the past 50 years.

SUCCESSFUL TREATMENT OF A CASE OF THORACIC ANEURYSM THREATENING TO RUPTURE EXTERNALLY.

By ERIC E. YOUNG, M.S. LOND.,
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THE marked success attending the efficient treatment of the following interesting and apparently hopeless case justifies its publication.

The patient, aged 43 years, until lately a member of the police force, was admitted to the North Staffs Infirmary on June 8th, 1906, and the following history was given. Four years previously he had been medically treated for shooting pains in the ribs. A year later he had consulted a medical practitioner on account of constant and shooting pains in the region of the right shoulder, radiating downwards to the fingers of the right hand and upwards to the right side of the face and neck. The pain never occurred in paroxysms; its origin was deemed to be rheumatic, and the usual remedies were accordingly applied. After this treatment had been continued for one month he drew the attention of his medical attendant to a visible pulsation in the lower part of the right side of the neck; a diagnosis of aneurysm of the arch of the aorta was then made, and he was sent as an in-patient to the hospital, where he remained for 11 weeks, deriving much benefit. He stated that for days together he could not put on his coat without help, owing to the numbness and pain in the right upper extremity. While in the hospital he was seen and examined by all the honorary surgeons with a view to treatment by surgical measures, but finally it was almost unanimously decided that operation was futile. After leaving the hospital he attended as an out-patient regularly for five months, afterwards occasionally, and was last seen three weeks before he was admitted a second time in June, 1906. He had meantime continued his work as lamp-room attendant up to January of this year. The aneurysm had been steadily though slowly increasing in size since he left the hospital in April, 1903, but with very little inconvenience to himself except pain. Two weeks before the admission in June, 1906, he noticed a change in the swelling, the skin seeming to give way in the upper part, and here a protuberance formed very quickly. During the last three months he had suffered from an irritating cough, with no expectoration, and the voice had changed in timbre and had become husky.

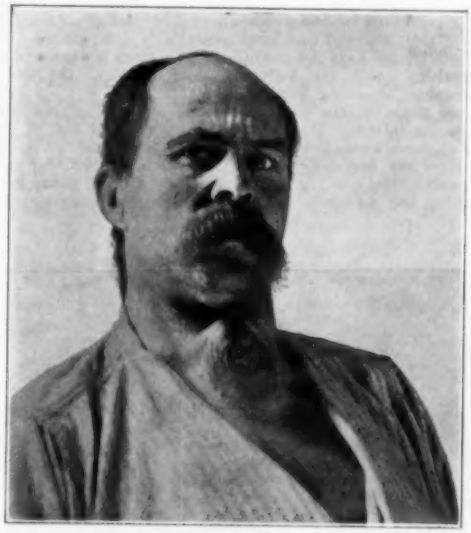
When I saw him in the out-patient room on June 8th I did not dare to send him home on account of his critical condition, which was fully recognised by the patient himself and which I shall presently describe. I feared the aneurysm might rupture on his way home and "another hospital scandal" be originated in the daily press. I therefore admitted him, as I thought to die, and with no hope of any lasting improvement.

With regard to the past history of the patient it was ascertained that he had served 22 years in the army, in the North Stafford Regiment, acting as gymnastic instructor. While in the army he had spent five years in South Africa and 18 months in Mauritius. There was no history of syphilis. He stated that he had always enjoyed excellent health. He had been married for 20 years and his wife was alive and well. They had had eight children, all of whom were healthy. The patient's father was killed in a railway accident, and his mother had died at the age of 80 years from "heart disease." His brothers and sisters were all healthy. The patient had always been temperate in his habits and had never experienced any injury or sudden strain.

When admitted to hospital the patient did not look very ill, though the expression of the face was anxious. The complexion was dusky; enlarged venules were present in the skin covering the malar prominences; the voice was distinctly husky, the respirations were quiet, and there was no stridor or dyspnœa. The patient was troubled at times by a short irritating cough but he expectorated nothing, and had never suffered from hæmoptysis. The external jugular veins were well marked and were prominent on both sides. The patient complained only of a sharp shooting pain in the right shoulder and neck. He had never suffered from palpitation or from attacks of fainting.

On inspection a very large pulsating swelling was seen in the neck and the upper part of the thorax reaching from a line drawn across the level of the lower border of the third rib to just above the level of the lower border of the thyroid cartilage, the greatest length being 5 inches and breadth 5·4 inches. Pulsation was marked. Below the swelling was more pronounced on the right side, but as it was traced upwards it inclined somewhat to the left so that the upper limit was situated more to the left side, and the larynx and trachea were observed to be displaced distinctly to the right side. At the upper part and on the anterior aspect of the general swelling was a second swelling (Fig. 1) raised above the general surface, of about the size of a hen's egg. The measurement around the neck here was 19½ inches while below this second swelling it was 18¼ inches. The skin covering this protuberance was extremely thin, tense, shiny, and dusky red in colour, looking extremely like an abscess on the point of bursting; so thin and stretched was the skin that I was afraid to place the fingers even lightly on the surface and expected every moment to see the skin give way.

FIG. 1.



Appearance of the patient at the date of his admission to the hospital.

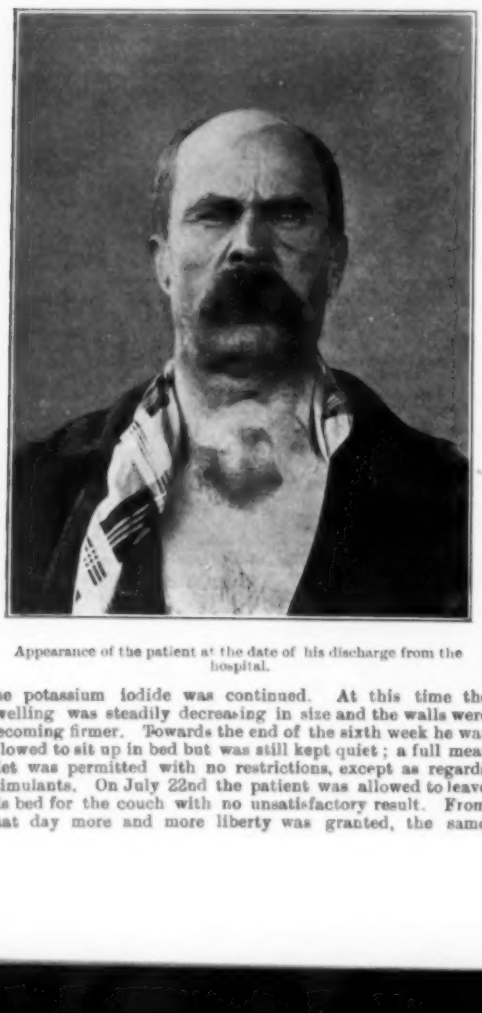
On very light percussion the note was universally dull. On palpation the tumour was not well defined, the walls seemingly being very thin. The pulsation corresponded with a general expansile movement visible in the whole tumour. The impulse was more or less diffused over the entire exposed swelling and was broadly heaving in character, being more appreciated by the whole hand than by the finger. The whole of the manubrium sterni had been destroyed, together with portions of the clavicle and upper two ribs. The inner extremity of the left clavicle could be distinctly felt abutting against the tumour, but the inner ends of the right clavicle and ribs were not so definitely felt and could not be differentiated clearly from the tumour. On auscultation a loud roaring murmur was heard all over the exposed surface of the sac. There were no œdema of the chest or arms and no enlargement of the superficial veins of the chest wall. The radial pulses showed no difference, the pulse-rate being 72. The arteries everywhere (temporals, brachials, radials, femorals, and tibials) were not unduly tortuous; no irregularity of the vessel walls and no undue resistance could be discovered. The pupils were small but equal and reacted quite normally to light and accommodation. There was no clubbing of the finger ends. On laryngoscopic examination, which was conducted with difficulty, the vocal cords appeared to act normally. The impulse of the apex beat of the heart was well marked and situated in the usual position, the area of cardiac dulness apparently being not increased. The

cardiac sounds were heard with difficulty but seemed to be clear at the apex; no adventitious sounds could be detected in this situation. Nothing abnormal was discovered on examination of the lungs. There was no pyrexia.

The patient was put to bed immediately and was kept absolutely quiet in the recumbent position, the head being fixed in position by means of sand-bags, and no pillow allowed. Here I should add that the patient greatly assisted by lying perfectly still. The diet was restricted as far as possible, both as regards fluids and solids, but the strict *régime* was not forced and at the end of the first week he was allowed an ordinary fish diet, all stimulants being withheld. Iodide of potassium was administered internally in doses of ten grains three times a day, the dose being quickly and steadily increased so that by the end of the third week 60 grains were being taken three times a day, with no ill-effects at any time. As a local application to the swelling collodion was painted all over its surface every night and morning.

I expected a rapid and steady downward progress towards a fatal issue and to hear at any time that the aneurysm had ruptured externally, but happily my anticipation was not fulfilled and the patient began to improve from almost the commencement of the treatment. As soon as he was fully under the influence of the iodide of potassium the pain was greatly relieved and later practically disappeared. At the end of ten days the size of the aneurysm appeared to be diminished and the pulsation less marked, the walls seemingly becoming thicker, showing that clotting was taking place within the sac; the dusky swelling was also lessening in size. The improvement continued and at the end of three weeks the patient stated that he had not felt so well for the last four years. More liberal diet was now allowed. He was still, however, kept in the recumbent position, the collodion was applied night and morning, and

FIG. 2.



Appearance of the patient at the date of his discharge from the hospital.

the potassium iodide was continued. At this time the swelling was steadily decreasing in size and the walls were becoming firmer. Towards the end of the sixth week he was allowed to sit up in bed but was still kept quiet; a full meat diet was permitted with no restrictions, except as regards stimulants. On July 22nd the patient was allowed to leave his bed for the couch with no unsatisfactory result. From that day more and more liberty was granted, the same medicinal treatment being continued, and in the ninth week he became a most useful convalescent patient in assisting in the work of the ward.

On August 22nd, the day before leaving the hospital to recommence his work, the patient's condition was as follows. The tumour was now much smaller, there was scarcely any visible expansile pulsation, the whole surface of the swelling was smooth, the protuberance having completely disappeared, and the overlying skin was everywhere normal (Fig. 2) (the dark patches in the picture being largely due to the collodion). The walls were very firm, thick, and well defined, and the impulse was considerably less marked. The measurements now were: circumference of the neck at the most prominent part of the swelling, 17 inches; greatest length of the swelling in a vertical direction, 4 inches; greatest breadth, 4·4 inches. The cough had entirely disappeared and the patient had increased in weight; the voice was, however, still somewhat harsh.

I have to thank Dr. Wheelton Hind most cordially for his kindness in allowing me to use the notes.

Stoke-on-Trent.

CONCUSSION OF THE SPINE, WITH SOME REMARKS ON CONCUSSION IN GENERAL.

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CONCUSSION of the spine is a subject about which there has been a great deal of misunderstanding. This has in part arisen on account of the phrase having been used, both popularly and professionally, in connexion with railway injuries. Mr. H. W. Page, as the result of his vast experience of these cases, says: "It is not intended to bring forward the evidence, which is conclusive and can be found elsewhere, as to the absence of intraspinal injury in the vast majority of cases where there is complaint of spinal pain. It must suffice to remind the reader of the fact that the physical relations of the spinal cord and the bony canal in which it lies are wholly different from those of the brain and skull, and that they do unquestionably protect the cord from the injurious effects of blows on the back, such as, were they to fall on the head they would be likely to cause concussion of the brain. It may, indeed, be said at once that concussion of the spine is one of the rarest of injuries, and that, as the writer has shown in another place, railway collisions are not especially prone to provide examples of it. 'Concussion of the spine' and 'railway spine' are therefore bad and misleading terms to employ in speaking of the kind of spinal injury which is common in railway accidents; and they are still worse to apply to the general effects on the nervous system[1] when there is no accompanying injury to the back. The height of absurdity is reached when either the one term or the other is used for a functional neurosis in which there is nothing wrong with the spine, and the person suffering has never been in a railway accident." The above was written in 1893. In 1900 Mr. C. H. Golding-Bird and Mr. G. Bellingham Smith wrote as follows: "The question of spinal concussion is a vexed one. While some surgeons practically deny its existence others class under that name conditions that are now known to bear a different interpretation. As in past years many paraplegic states were regarded as functional which we now with improved methods of investigation know to be the result of definite spinal lesions, so the generic term concussion is gradually becoming more and more limited in its application. By 'concussion of the spine' is meant a more or less complete annihilation of the functions of the cord, immediately consequent upon an injury, temporary in character, and unattended by any discoverable lesion." A consideration of these two authorities will show that the work of purification, begun years ago by Mr. Page, has led to the gradual definition of the lesion, and it is hoped that the cases to be brought forward will lead to

[1] These cases are examples of traumatic neurasthenia. See paper in the International Clinics for 1906.

its being recognised clinically. Before proceeding to the clinical side something must be said about the pathological changes presented.

When considered with regard to an organ, concussion may be separated at least into two kinds, general and local. There is naturally no line of distinction to be drawn between them. The differences are in the distribution and extent of the injury, not in its pathological character.

General concussion.—Shaking due to violence applied relatively at a distance from the part affected. By the term "relatively" is meant that the force is applied at such a distance that the resulting shaking is more or less uniform and equable in the organ under consideration.

Local concussion.—In this variety the violence is applied close to the organ in which the resulting shaking is not uniform or equable, being greatest near the site of the injury.

The pathology of concussion.—In the pathological explanation of concussion three chief views hold the field: that of molecular disturbance and displacement, that of multiple small hæmorrhages, and that of the displacement of the cerebro-spinal fluid (Duret). Of the last of these we need not speak, as there is little or no possibility of its being efficacious except in the brain. It is the first of these which forms the basis of the pathology of concussion. The essential for its production is a shaking of the part affected, causing some displacement of the constituent molecules in relation to one another. In slight shakings there is no visible or gross anatomical lesion. But if the shaking is more violent there may be minute anatomical lacerations produced by the movements of the molecules upon one another, and so, multiple hæmorrhages. By means of variations in the severity of the shaking, and consequently in the magnitude of the lesions which result, all the clinical differences found in cases of concussion can be explained.

The brain may be said to consist of white and grey matter, the former of which is made up of medullated nerve fibres and the latter of non-medullated fibres and nerve cells. In concussion of the brain both of these structures are subjected to the shaking; but, according to their powers of resistance, they will be affected differently. There seems to be no apparent reason why the medullated nerve fibres in the brain and spinal cord should be more affected than those in the nerve trunks, such as the sciatic. The question of *general* concussion has never been raised in connexion with a nerve trunk, as distinguished from the results of a direct blow to a nerve which is an example of *local* concussion. In fact, although the injuries of nerves have been studied by some of the ablest of men the symptoms of no clinical case have been attributed to a *general concussion* of the nerve trunk. As the symptoms of general concussion of a medullated nerve have not been described it may be presumed that the symptoms of concussion of the brain are produced by the molecular disturbances in the grey matter and not in the white.

The situation where the non-medullated nerves fibres are most frequent is the sympathetic system. Of concussion of the sympathetic itself there is next to nothing known. But it is well known that concussion of the chest and abdomen gives rise to conditions of far more seriousness than do the like injuries applied elsewhere. Mr. A. Pearce Gould says: "In certain cases of severe contusion of the chest in which death supervenes instantaneously, or after a very short interval, no gross lesion is found to explain this result. In other cases more or less severe symptoms persist for hours, or even a day, but the most careful physical examination of the chest fails to reveal any lesion to account for them, or the symptoms cannot be explained by the lesions present." He suggests three or four causes—stimulation of the intra-thoracic branches of the vagus nerve, concussion of the heart, paralysis of the sympathetic, or anæmia of the brain. From what has been said in the earlier part of this paper it will be suggested that severe shaking of the non-medullated thoracic sympathetic will in concussion of the chest lead temporarily to its paralysis and the accumulation of blood in the mesenteric and other abdominal vessels. It would seem that concussion will affect the non-medullated sympathetic nerves and ganglia long before it is severe enough to stimulate the medullated fibres of the vagus. Concussion of the heart is concussion of its ganglia which are unprotected by any medulla, which will be affected similarly. Paralysis of the sympathetic will leave the tonic inhibitory action of the vagus on the heart without an antagonist and will produce symptoms like vagus stimulation.

In concussion of the chest there must be some lesion of the sympathetic system; such lesion must be of the nature of general concussion rather than that of a direct blow. So that on the meagre evidence which is at present available there is reason to believe that there is such a thing as clinical concussion of a non-medullated nerve fibre or ganglion and not of a medullated nerve fibre—that is to say, of grey matter and not of white. This is what one would expect. The inclosing of a nerve fibre, or better, of an axis cylinder, by a fatty envelope, whatever its other functions may be, must serve to protect that fibre from external violence or injury. Such an investment must be a necessary accompaniment of the evolution of practically every animal. The daily life of every animal, from the most primitive to the most complex, especially when endowed with the power of movement, must entail a number of concussions or shakings. *Pari passu* with the higher and more complex development of the nerve centres goes a greater vulnerability to injury, and also, usually, an increased danger of concussion. Hence a still greater need of the protection of the nerve structures. The very protection of these parts is an absolutely necessary act—that is to say, a postulate or axiom for the fitting of an individual for the struggle for existence. We can then form some idea of one cause at least in the evolution of the medulla of the sheaths of nerves. About the medullation of nerve fibres in the animal series but little is known, except that it is not found in the lowest forms, while medullation is universal in the higher. Even in them at birth, for instance, the white rat has no trace of medullation in its nervous system at that date. Dr. Watson of Chicago[3] found that the rate of medullation did not keep pace with the development of psychic activities and associations. Moreover, the anatomical situations of the early appearances of medullation are not readily understood. In the human subject more and more nerve fibres become medullated as life progresses.[4]

In connexion with the view that the medulla of a nerve has a protective function for its axis-cylinder may be mentioned two facts—namely, the somatic nerves—are those from their distribution most liable to injury and are medullated, whilst the visceral or splanchnic nerves are non-medullated; and the non-medullated grey matter of the spinal cord is internal and surrounded by a protective layer of white medullated matter. In both cases there is a suggested confirmation of the view put forward that white matter is protected and therefore protective to the grey. In the brain the disposition of the grey and white matter is the opposite; the former is on the surface forming the cortex, as well as within forming the so-called basal ganglia, nerve nuclei, &c. The question of this disposition is wrapped up with that of the development of the cortex cerebri and is beyond our knowledge at present.

To resume the discussion of concussion of the brain it must be pointed out that the grey matter consists of both non-medullated axis-cylinders and nerve cells. Considering the far greater gravity of the symptoms in concussion of the brain than in concussion of the chest it may be concluded that the most severe lesion in the former is to the nerve cells themselves, a circumstance which we should naturally expect from their greater complexity and specialisation. It would seem that the medullated nerves, the non-medullated nerves, and the nerve centres or cells form a series of increasing intensity of reaction to the violence of shaking. We are quite accustomed to the concussions of our daily existence and are not inconvenienced by them. But if we are placed in a position and exposed to shakings to which we are not nervously adapted then we suffer the discomforts (to many people) of sea and railway travel.

Having thus differentiated between the effects of concussion on the constituent structures of the nervous system in general we will now pass on to the consideration of the same condition in the spinal cord in particular. To begin with, the surroundings are perfectly different in the two cases. For instance, the brain is anchored by the nerves at its base, whilst its upper part can make considerable excursions. In the case of the spinal cord it is different. The cord is tethered on both sides by the nerves and the ligamentum denticulatum, so that it cannot come into contact with the walls of the canal in which it lies. Thus

[3] Animal Education, Chicago, 1903.
[4] Journal of Comparative Neurology, 1900, vol. x., p. 363.

[2] Treves's System of Surgery, vol. ii., p. 401.

there have been no lesions of the spinal cord attributed to *contrecoup*, as is the case with the brain. We must therefore agree with Mr. Page that concussion of the spine must be one of the rarest of injuries. But I believe it can be recognised clinically and should like to direct attention to a condition which has not been recognised as being due to concussion of the spine. If this is correct then local, as distinguished from general, concussion of the spine is by no means so infrequent as many authorities would lead us to expect.

CASE 1. *Local concussion of the spine; fracture of the axis.* (Shown before the Clinical Society of London, October, 1903.[5])—A man of about 45 years of age was returning home on horse-back. Being very tired he was half asleep, so that when his horse quietly subsided on to its knees he slid down its neck and alighted on his head. Then the horse ran away, leaving him on the ground. There was never any loss of consciousness; indeed, his mind was preternaturally clear. He was paralysed in all four limbs, with corresponding anæsthesia. He lay on the ground for about 20 minutes, when someone came up to him and remarked upon the curious crossed position of his legs, of which he was quite unconscious and powerless to rectify. He was given brandy, shortly after the administration of which the paralysis and anæsthesia began to pass off. The total duration of these symptoms was about half an hour. He was very ill for some weeks, not daring to sleep for fear his head should drop. Suffice it to say, that it was only after the lapse of six years that the existence of a fracture of his second vertebra, the axis, was proved to have occurred by means of the x rays.

As this case was not seen at the time of the accident the story was received with some caution. But when a second man came with a similar history it was realised that these cases might represent concussion of the spine. For a long time it had been recognised that the vertebræ could contuse the cord and spring back so that no lesion of the column was apparent, yet concussion had not been recognised in this connexion.

CASE 2. *Local concussion of the spine; fracture of the fifth cervical vertebra.* (Shown before the Clinical Society of London, 1904 and 1905.[6])—A man, about 20 years of age, by profession an acrobat, in the performance of his part received an injury to his neck which was followed by an immediate paralysis and anæsthesia of all four limbs and the trunk. As in the former case the symptoms cleared up in about 20 minutes, the clearance rapidly following the administration of brandy, so that it would appear that the stimulation of the circulation had something to do with it. The man subsequently recovered completely and a skiagraph showed that he had a fracture of the body and the pedicles of his fifth cervical vertebra.[7]

The above two cases represent a local or segmental concussion rather than a generally distributed lesion through the spinal cord. It was probably produced by a blow from the vertebræ which sprang back into positions in which the cord was safe.

General concussion of the spine must be a very rare thing and still rarer must it be for it to be recognised clinically. As has been seen, the spinal cord is excellently protected and a shaking sufficiently violent to cause general concussion of the spinal cord will at the same time produce such violent concussion of the brain and perhaps of the sympathetic system that all symptoms referable to the spinal cord will be completely masked.

Marginal concussion of the spine.—There is a third class of case in which we may look for signs of spinal concussion as defined above in the two illustrative instances. Whenever there has been a serious lesion to the cord, the segments immediately above and below the seat of that injury will be concussed. This marginal concussion will of necessity be frequently masked by the pressure of a hæmorrhage. It is therefore beholden upon us to be on the look-out for its occurrence. It is quite possible to recognise the concussion which accompanies, and is above, a gross spinal injury, always provided it is not obscured by a hæmorrhage—that is to say, concussion of the segment of the cord at the margin of the injury can be recognised clinically. Three cases will be quoted to exemplify this.

CASE 3. *Fracture-dislocation of the spine; marginal concussion.*[8]—The patient, a male, aged 31 years, fell from the third storey of a house to the ground. On admission to St. Thomas's Hospital, amongst other signs, anæsthesia extended up to the third dorsal nerve. By the next day, feeling had returned almost as far as the umbilicus—that is, the region supplied by the tenth dorsal nerve. Post mortem there was a fracture-dislocation of the seventh dorsal vertebra with transverse rupture of the cord.

CASE 4. *Dislocation of the spine; marginal concussion.*[9]—The patient, a man, aged 22 years, had fallen from a railway trolley and had hurt his neck. On admission to hospital amongst other signs there was total anæsthesia up to the level of the second dorsal nerve. In one and a half hours the anæsthesia had cleared up as far as the nipple. Post mortem the fifth cervical vertebra was dislocated forwards on the sixth; there was some very slight hæmorrhage at the seat of the injury.

CASE 5. *Dislocation of the spine; marginal concussion.*[10]—The patient, a man, aged 21 years, injured his neck at sea. Two minutes after the accident there was "paralysis of all sensory and motor nerves of all four limbs and of the trunk up to the nipples." Three hours after the accident he had recovered the use of his arms, except in those muscles supplied by the ulnar nerves. A skiagraph showed a dislocation of the sixth cervical vertebra.

The three selected cases just given illustrate the condition which I have urged is a true concussion of the spinal cord beyond the limit or margin of the gross injury. In Cases 3 and 4 the clinical recognition was made by the area of anæsthesia clearing up very quickly in such a way as to be inexplicable upon the generally accepted view of spinal hæmorrhages. Case 5 illustrated a similar clearing up of motor symptoms. In these three cases brief mention of such points has been made as was necessary to exemplify and not to obscure the clinical recognition of marginal concussion of the spinal cord. It is suggested that at the moment, or shortly after an injury to the spine, the motor and sensory symptoms exceeded the area indicated by the injury. If this excess of symptoms is due to concussion of the cord and is not obscured—i.e., perpetuated, increased, or decreased by a hæmorrhage—it will clear up or begin to clear up in a few hours. Later excess of signs and symptoms is due to hæmorrhages. Still later, after the third day, it will be due to inflammation, myelitis.

The following case is recorded as the best fatal example of a local or segmental concussion of the spine which has passed under my notice.

CASE 6.—A man, aged 73 years, was found unconscious lying on the floor of a stable, having been kicked between the shoulders by a horse. He was semi-conscious but could affirm the history of the kick. On examination there was a bruise high up between the shoulders and complete paralysis and anæsthesia of the lower limbs and lower part of the trunk. Breathing was almost entirely diaphragmatic and the movements of the upper limbs were limited to flexion of the wrists and the fingers. Anæsthesia, priapism, and retention of urine were present. The pulse was 44 and the temperature was normal. Death took place on the second day. Post mortem there was no fracture or dislocation of the spinal column. There was no visceral disease. The cord itself showed no sign of hæmorrhage within or without, but appeared much softened, "probably due to post-mortem changes." There was no obvious cause for death.

Owing to the mental and grave bodily condition of the man the clinical examinations were very incomplete. Hence there is no idea of the clinical recognition of spinal concussion in this case. In fact, it is merely recorded as an example of a fatal case, showing symptoms of paralysis and anæsthesia, for which there were no obvious causes to be found in the vertebral column, spinal cord, or its membranes. The case may therefore be regarded as an example of the pathological recognition of a spinal concussion.

It is hoped that the discussions in this paper will have done something towards clearing our ideas on a subject which is hazy and obscure with the traditions of the past. Concussion of the spine has been subdivided into general and local concussions: the former we can hardly hope to recognise during life, and not at all after death; the latter we can recognise during life as segmental concussion of the cord, and can infer its presence after death. We can recognise it also in the excess of signs and symptoms above a gross spinal injury, marginal concussion, provided they are not obscured by a hæmorrhage. Pathologically, it has been

[5] Transactions of the Clinical Society of London, 1906.
[6] Ibid.
[7] Ibid., 1905, p. 234.
[8] St. Thomas's Hospital Reports, 1899, p. 193.
[9] Ibid., 1900, p. 190.
[10] Ibid, 1900, p. 189.

suggested that the medulla of a medullated nerve fibre has been developed during evolution, in part, to protect the axis-cylinder from the concussions of the daily life of an organism.

Harley-street, W.

A NOTE ON BORIC ACID RELATIVE TO APPENDICITIS.

BY REGINALD HARRISON, F.R.C.S. ENG.,
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It has been stated with some authority that the frequency of appendicitis has been considerably added to in recent years by the large use of boric acid and other chemicals as food preservatives. Though such a suggested connexion does not at first sight appear obvious, it seems to be a subject worth further consideration.

Some years ago I was making observations on the action of boric acid (as well as other drugs) administered internally with the object of sterilising the urine in connexion more especially with the prevention of urinary fever following operations on the urinary organs. I also extended these observations in another direction—namely, to that suggested by Rainey's work on Molecular Coalescence relating to the artificial production of urinary gravel and calculi.

In THE LANCET of March 14th, 1903, at p. 749, an annotation appeared on the disturbing effects of boric acid on the digestion of healthy persons and invalids when taken internally. I ventured to endorse this statement, in consequence of seeing many persons suffering from these effects, in a letter which appeared in THE LANCET of the following week (p. 836). The prominent symptom complained of was dyspepsia accompanied by very great and distressing flatulency. Accordingly, as stated in my letter, I abandoned boric acid for the purpose mentioned and used boracite which I have continued to find an excellent and unimpeachable substitute.

After enumerating a number of food preservatives, of which boric acid was a frequent one, Dr. Richard Jones, in his address[1] to the North Wales branch of the British Medical Association, observes that "there can be no doubt that the continuous introduction of these chemical substances into the system interferes with digestion, depresses the heart action, and injuriously affects the kidney," and further he points out that the rate of deaths during 1885–1904 from enteritis, appendicitis, and perityphlitis has increased from 133 to 305 per million.

In his treatise on appendicitis Dr. Deaver of Philadelphia, U.S.A., states: "Of the exciting causes of appendicitis from the clinical point of view disturbances of digestion are the most important. Such is the prominence of these in the etiology of appendicitis and with such constancy have they been observed that it is unhesitatingly asserted that appropriate inquiry will elicit a history of such disturbances in almost all cases."

It has always seemed reasonable to me to infer from my surgical dealings with this affection that some mechanical condition, insufficiently explained, connected with the function of digestion would eventually be determined as playing an important part in its causation.

It may be assumed that the appendix takes no part in the digestive or intestinal function and is not structurally or physiologically fitted for it; in fact, it would appear that any attempt to use it as a receptacle for either the natural or accidental contents of the canal may be the first step in the process which eventually ends in inflammation of this blind and rudimentary sac. Anything entering it, gaseous or otherwise, must be incapable of "moving on," and unless regurgitation haply and fortunately takes place the imprisoned contents are likely to undergo active bacterial decomposition with the evolution of foul and irritating gas.

The initial lesion which probably renders appendicitis possible is the opening or blowing out of the appendical canal to such a degree as to render it accessible to the contents of the intestines as carried along by the ordinary and extraordinary means of propulsion technically known as peristaltic action. When this condition has thus been fairly well established the ease and even life of the appendix, not to say anything of the individual, are liable to become precarious. In this sense flatulent dyspepsia, however produced, may lead up to an appendicitis.

Under the title of "Traumatism as an Etiological Factor in Appendicitis," Dr. W. J. McDonald has recorded some interesting cases[2] where appendicitis has apparently followed injuries in which the abdomen has been suddenly and violently compressed. Surely the primary lesion in these instances was the opening up of the appendical canal and subsequent access to it by the intestinal contents. The compression sufficiently exercised by an inverted bag containing more or less gas must almost necessarily discover any weak or patent spot in its wall, just as emphysematous air confined in other parts of the body will show the line where least resistance is offered to the advance of extravasation of urine. Or, to take another example, an intestinal hernia may be either gradually or suddenly formed. So in like manner may an appendix be prepared beforehand to receive and detain whatever the bowels contain, though the latter events need not necessarily happen. In these days when Acts of Parliaments and persuasive advertisers seem to regulate what we may or may not put into our stomachs a careful scrutiny should be exercised as to what all this means.

Lower Berkeley-street, W.

[1] Brit. Med. Jour., August 18th, 1906.

A CASE OF OSTEITIS DEFORMANS WITH HUNTINGTON'S CHOREA.

BY CHARLES MACKEY, M.B. VICT.,
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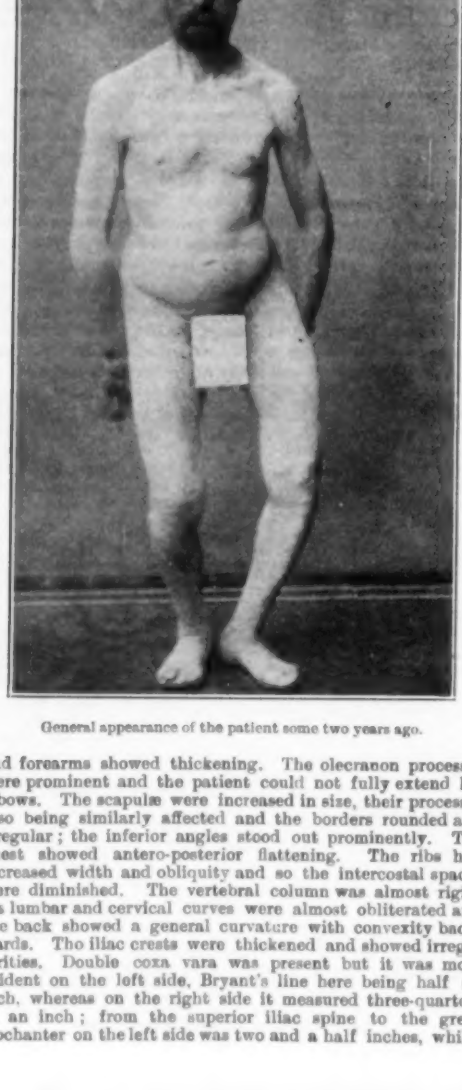
A MAN, aged 57 years, a labourer, was admitted to the County Asylum, Lancaster, on Feb. 2nd, 1904. 26 years ago the patient was said to have sustained a "severe injury to the spine." He began to suffer from "twitchings" 12 years ago and for some time had had pains in his back. It was difficult to say definitely whether he had had syphilis or not, but there were several old scars in the right inguinal region. With regard to his family history, the patient was married and had had eight children, five of whom were healthy; the remaining three "died in infancy." His father died from "paralysis" and the patient's uncle was said to have had chorea. The patient was fairly well nourished and showed deformities of the limbs and trunk (see figure), mental disorder, and irregular, involuntary, spasmodic movements of the limbs, the trunk, the neck, and the face. All his teeth were sound and very well preserved. The circulatory system was normal. As to the respiratory system, there was want of resonance over the right apex and here the breath sounds were harsh in quality. Sonorous rhonchi were audible over scattered areas of the left lung. The patient's mental state was as follows. He was emotional and simple in conversation and behaviour. His memory for recent events was impaired. His intellectual faculties were blunted, being unable to hold a conversation or answer any but the simplest questions. When drugs were withheld he slept in a fitful manner, just appearing to doze for from ten minutes to half an hour at a time. During the day there was marked restlessness. His speech was slurred and explosive in character, with recurring utterances. Muscular power appeared to be normal but there was some wasting in the following muscles on each side: the biceps, the triceps, the supraspinatus, the infraspinatus, the pectoralis major, and the deltoid. There was well-pronounced muscular incoördination of the limbs, the lower jaw, and the tongue. This incoördination was very evident when the patient attempted to take anything out of his pocket, as he then had to make several trials even to get a hand inside the pocket, and it was also noticeable when he was told to open his mouth or put out his tongue. Fine fibrillary twitchings were seen in many of the muscles of the trunk, the neck, the face, and the limbs. There were also marked choreiform movements of these parts and such spasms were intensified by emotion and ceased during sleep. In walking the patient swayed his whole body from one side to the other, taking very short steps and sliding his feet along the ground. He had a limp owing to the difference in the

[2] New York Medical Record, June 2nd, 1906.

length of the lower limbs. Walking was very difficult and trying to him; even in going very short distances (ten feet) he rested frequently, with his head well forward and his hands upon his thighs. The pupils reacted normally to light and to accommodation. The knee-jerks could not be elicited, nor could any of the following reflexes: the plantar, the cremasteric, the abdominal, and that of the triceps. Ankle clonus was present. He had control over the rectum but micturition was often difficult. Sensation was apparently unimpaired. The malar bones and lower jaw appeared rather prominent. The circumference of the head was 22½ inches and the coronal measurement from one external auditory meatus to the other was 15 inches, whereas taking the tape between these latter points and around the chin showed 13¾ inches. The clavicles were thickened (the right more than the left), rounded, and their outer curvatures were increased, thus giving more prominence to the heads of the humeri. The bones of the arms



General appearance of the patient some two years ago.

and forearms showed thickening. The olecranon processes were prominent and the patient could not fully extend his elbows. The scapulæ were increased in size, their processes also being similarly affected and the borders rounded and irregular; the inferior angles stood out prominently. The chest showed antero-posterior flattening. The ribs had increased width and obliquity and so the intercostal spaces were diminished. The vertebral column was almost rigid. Its lumbar and cervical curves were almost obliterated and the back showed a general curvature with convexity backwards. The iliac crests were thickened and showed irregularities. Double coxa vara was present but it was more evident on the left side, Bryant's line here being half an inch, whereas on the right side it measured three-quarters of an inch; from the superior iliac spine to the great trochanter on the left side was two and a half inches, whilst on the right side it was three and a quarter inches. There was marked thickening of the femora and the tibiæ and this was more pronounced in the left limb. The left femur was curved outwards and forwards and the tibia of this side showed similar curvatures. The internal condyle of the left femur was much increased in size. The following measurements were taken: from the tip of the great trochanter to the lowest part of the external condyle of the left femur 16½ inches, whereas between similar points on the right side 16 inches; the circumference of the left knee 15½ inches; the circumference of the right knee 14½ inches; the left calf 13 inches; the right calf 12½ inches; from the upper limit of the internal tuberosity of the left tibia to the tip of the malleolus 14½ inches and 13¾ inches between similar points on the right leg. The subcutaneous surface and anterior border of the left tibia were much rounded and irregular in outline and in this bone the enlargement could easily be felt. The above measurements showed it was longer than the right tibia although much more curved. The patellæ appeared to be normal.

With regard to the progress and treatment, the man's condition is becoming worse both with regard to the chorea and the bone disease. Drugs, such as have been tried (arsenic, iron, salicylates, and monobromate of camphor), have had little effect. Whilst he was taking monobromate of camphor the restlessness and muscular incoördination were thought to be rather less and sleep was not quite so fitful.

Remarks.—The comparative rarity of osteitis deformans and Huntington's chorea seems to call for the above case being recorded, seeing that the two conditions are present in the one patient. Such accounts of cases of these two conditions as I have been able to consult show some disparity. This will be evident from the following comparisons. In the above case there appears to be no malignant growth present in any other part of the body, as seen in some of the cases reported by Paget.[1] Similar bones are not always and equally affected.[2] The patellæ may be apparently free from the morbid process or may take part in the inflammatory changes, as in Viney's report[3]; the skull bones may escape (Mackenzie[4]); the ribs, scapulæ, clavicles, and bones of the upper limbs were not affected in Watson's case.[5] Coxa vara is mentioned as being present by Viney and referred to as an associated condition by Ziegler.[6] The fact that coxa vara has only within late years received much attention may account for its not appearing in many of the early notes. The knee-jerks, as stated above, could not be obtained; but such might be expected from changes found in the peripheral nerves and posterior columns of the spinal cord by Gilles de la Tourette et Marienesco[7] in osteitis deformans.

Some want of agreement between reported cases of osteitis deformans will very likely be due to the patients being in different stages of the disease at the time the accounts are written. In Huntington's chorea muscular power is said not to be diminished, but Rossi[8] found it much lessened in his case and he says the cutaneous reflexes were normal. These reflexes in the above patient were absent but such absence may be due to changes found in the peripheral nerves and spinal cord in osteitis deformans alluded to above. Owing to the spasmodic contractions which the patient's muscles underwent in this case it has been found impossible to take satisfactory skiagrams of his bones.

Lancaster.

[1] Transactions of the Royal Medical and Chirurgical Society, vols. lx. and lxv.
[2] Allbutt's Medicine.
[3] Guy's Hospital Reports, 1877.
[4] Transactions of the Clinical Society of London, vol. xviii.
[5] Johns Hopkins Hospital Bulletin, 1898.
[6] Lehrbuch Spec. Path. Anat. II., p. 165.
[7] Nouvelle Iconographie de la Salpêtrière.
[8] Rivista Sperimentale di Freniatria, vol. xxx., fasc. 2-3, 1904.

THE DUTIES OF PUBLIC VACCINATORS.—At a meeting of the St. Columb (Cornwall) board of guardians held on Sept. 15th the public vaccinator, to whom allusion was made in THE LANCET of Sept. 15th, p. 768, wrote stating that it was impossible to answer the questions of the Local Government Board with reference to the certificate of insusceptibility of vaccination which he had given for his own child. He also referred to some other matters which had been complained of, and the guardians decided to send the reply to the Local Government Board.

SOME OBSERVATIONS ON STAMMERING AND ITS TREATMENT.[1]

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THE explanations of this condition which have from time to time been proposed are so numerous and varied as to make it appear probable that the truth lies somewhere buried in the pile. Indeed, the literature of the subject is vast, but, as Kussmaul wittily puts it, most of the treatises have about as much value as the current pamphlets on balneology, so slight are the foundations in scientific proof of the opinions expressed. Among the minority of really enlightening papers published in recent years the chapter on Stammering in Wyllie's classical treatise on the "Disorders of Speech"[2] has probably had the most influence in forming opinion in this country. I propose in the present paper to take up the subject at the point to which Wyllie has brought it and having pointed out wherein his analysis is incomplete, I shall endeavour to give the complete explanation. Independent clinical evidence will then be adduced in support of this explanation. Finally, the consequent indications for treatment will be briefly discussed and incidentally a certain important property of speech—namely, rhythm—will be experimentally investigated.

It will be well to begin with a definition. This is the more necessary since some confusion has arisen through different interpretations of the terms "stammer" and "stutter"; a confusion which has been increased by the erroneous translation of the German "stammeln." "Stammeln" has, in fact, nothing to do with the condition known in English as "stammering," which is the translation of "stottern." The best definition of stammering which I have come across is that of Guillaume[3] and may be translated as follows:—

> We shall define stammering as a fault of speech, of irregularly intermittent type, principally characterised by the following two symptoms—(1) a spasmodic arrest before some syllable or other, such arrest taking place more particularly at the beginning of phrases; (2) a spasmodic repetition of the same syllable again and again. To these two symptoms add certain spasmodic movements, appearing often at the very instant of the difficulty in speech, in the muscles of the face and in divers parts of the body quite unconnected with speech (head, arms, legs). Add to this a laboured tone of voice, as though the speaker were out of breath. Finally, let us add an abnormal secretion of saliva—*une grande superabondance de pituite*, in the words of the ancients. This done, we have grouped together in a few lines the essential phenomena of stammering. If now we further emphasise two facts—namely, that on the one hand stammerers do not stammer in singing, and on the other that stammering is rare among women, we shall have a characteristic picture which, it appears to us, would be difficult to confound with any other defect of speech.

The second characteristic symptom described in the above definition—the spasmodic repetition of an initial syllable—is that variety of stammering which is known in this country as "stuttering." It is not, however, a common symptom; in fact, not nearly so common as is generally supposed and in the majority of cases only occurs occasionally, if at all. The common forms of stammering may all be included under the heading "spasmodic arrest of utterance," different varieties of which we shall presently distinguish.

Turning now to Wyllie's analysis of the phenomena as above defined it may be stated briefly as follows: Speech is the result of the coördinated action of two mechanisms—(*a*) the vocal mechanism, consisting of the larynx and respiratory apparatus, whereby the voice is produced; and (*b*) the oral mechanism, the duty of which is to modify the exit of the voice in such a way as to produce words. (*Note.*—I use the term mechanism throughout this paper as including both the muscular machine and its controlling nervous tract.)

Stammering is due to a functional disturbance the exact point of origin of which in the nervous tract is unknown but the result of which is a delay or want of promptitude in the production of the vocal element in speech. Owing to this delay the efforts of the patient to speak are diverted into extra and wrong channels and result in irregular and spasmodic contractions of the muscles concerned in the oral mechanism and where facial contortions, movements of the head, arms, or body occur they are simply to be regarded as instances of a further overflow of energy. "That the doctrine is true," says Wyllie, "can be shown by many familiar proofs." He confines himself to one, and this is the more to be regretted as it is the only proof which I have so far come across. One, however, would be sufficient if complete. The argument appears to be as follows. Stammerers do not stammer when they sing. In singing the attention is particularly directed to the vocal element, which is relatively exaggerated, often at the expense of the articulatory element. Hence, stammering begins with defective vocalisation. Of the universal exemption from stammering while singing there is no question. And how far this argument is to be regarded as conclusive proof, how far merely as a probable explanation I do not intend to discuss. I propose to accept the conclusion as true and to make it the starting-point of a further analysis. I do this the more readily because, as far as my experience of the disorder has gone, I have come across nothing which seriously threatens this hypothesis. A stammerer myself, I have carefully examined my own sensations, particularly when not stammering severely (i.e., when the primary delay is not completely masked by excessive overflow), and they have only tended further to convince me. Furthermore, I may cite what has long been the experience of "stammer doctors" that gymnastic exercise of the oral mechanism alone has practically no profitable effect; whereas this is not the case if the gymnastics be applied to the vocal mechanism as I shall have occasion to show later.

In order to demonstrate the relation between the vocal and articulatory elements in each individual letter Wyllie constructed a physiological alphabet. In this the letters are divided into vowels and consonants. The consonants are subdivided into (1) voiceless oral (*p*, *f*, *s*, *t*, *h*, *h*); (2) voiced oral (*b*, *w*, *v*, *z*, *d*, *l*, *r*, *g*, *y*); and (3) voiced nasal resonants (*m*, *n*, *ng*). Further, the consonants may be divided into the two characteristic types of explosives (*p*, *b*, *d*, &c.), and fricatives (*f*, *s*, *h*, &c.). In the enunciation of a voiceless explosive, as *p* for instance, the voice is not thrown in until just after the lips have opened and the current of air has begun to pass out. If, on the other hand, the vocalisation is begun at the very instant of the parting of the lips, synchronously with the explosion of the air, the *p* becomes *b*, a voiced explosive. There is a similar distinction between voiced and voiceless fricatives. Vowels are, of course, voiced throughout.

We may divide the common form of stammering into two main varieties:—

1. A complete arrest ("silent stick"—Wyllie) before some initial letter. This form occurs in nearly every case and is most common on the explosives. According to the hypothesis we have adopted the check is due to a delay in throwing in the vocal element on or just after the explosion.

2. An indefinite prolongation of an initial consonant. This occurs at fricatives (*f*, *l*, *s*, &c.) and nasal resonants, and is not so constant a feature as the first. In the case of the voiceless fricatives the difficulty may at once be ascribed to a delay in the vocal mechanism. But if it be a voiced fricative or a nasal resonant which is thus prolonged the explanation is not so obvious. Wyllie explains it thus: In the voiced fricatives and nasal resonants the stammerer produces the letter voicelessly, or with a feeble and intermittent voice, and dwells upon it indefinitely. The voice is not thrown into it boldly, as it ought to be, and the speaker therefore feels that the proper sound has not been produced.[4] There is also a further principle which must be recognised and which goes to explain occasional spasms in articulation not directly referable to vocal delay—namely, the development of secondary habits. In long-standing cases the nervous channels of overflow become worn very smooth and any attempt at speech may, from habit, produce delay or spasm in the oral mechanism. It is interesting to note that after the vocal mechanism is once brought even partially under conscious control it takes but very slight effort of the

[1] This paper is based on a graduation thesis read by the author in the University of Cambridge.
[2] Wyllie: The Disorders of Speech, London, 1894.
[3] Guillaume: Article "Bégaiement," Dictionnaire Encyclopédique des Sciences Médicales, 1868.
[4] As bearing on the mental condition of the stammerer in this connexion may be cited the common observation that stammerers will accept no compromise. They will, for example, allow no one else to say an obvious word for them or accept it as said, but will persist in their own futile efforts.

will to prevent the continuance of such secondary habits, and as a rule they require no direct attention.

I have not included "stuttering" among the varieties of the common form of stammering because I believe it to be uncommon. The explanation, however, on Wyllie's hypothesis would appear to be that the stammerer produces the first half of the syllable feebly and then his voice fails altogether. He at once starts again but again his vocalisation is abortive and so he continues the repetition indefinitely.

I would now draw the reader's attention to the point when it appears to me that Wyllie's explanation is inadequate. Although he includes both the respiratory and laryngeal mechanisms in his definition of the vocal mechanism he appears to assume throughout his paper that the delay arises primarily in the laryngeal element and, indeed, he not infrequently uses the terms "vocal" and "laryngeal" as if they were synonymous. But we know that some letters are partly produced by the respiratory mechanism alone, with an open larynx ("voiceless" explosives and fricatives). Yet in stammering of the first variety (the "silent stick") the check occurs at the very beginning of such letters. And although this form of stammer is more common on explosives it is by no means infrequent on fricatives, the purely respiratory and voiceless character of which is perhaps more obvious. Thus, I have known persons who would come to a complete standstill before an *h*. Here, then, the delay occurs before there is any demand for voice, and to ascribe the spasm to delayed vocalisation is to put the effect before the cause. The indication, however, of this apparent anomaly is evident. It is to inquire into the relative responsibility of the respiratory and laryngeal mechanisms for vocal delay.

Tabulating the coördinated mechanisms of speech thus:—

A, Mechanism of speech
- B, Oral mechanism
- C, Vocal mechanism
  - D, Laryngeal mechanism.
  - E, Respiratory mechanism

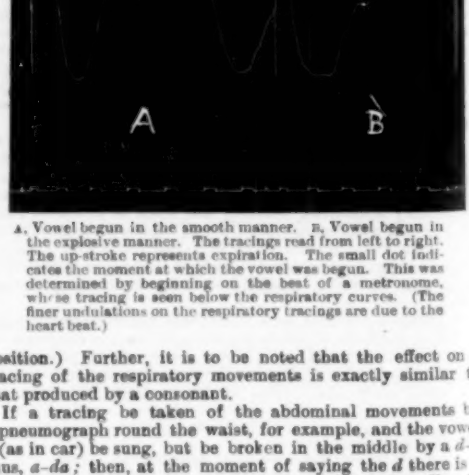
We have already seen that a delay in A is to be put down to a delay arising primarily in C. It will not then be unreasonable to suppose that the delay in C may be itself due primarily to a delay in the action of either D or E separately. That the laryngeal mechanism is at fault has been argued by some on the ground that stammerers do not stammer when they whisper. The larynx being freely open during whispering and the cords out of action, it is supposed that speech is then carried out solely by the respiratory and oral mechanisms, and is unimpaired. Now this argument is false for two reasons. First, stammerers are by no means universally exempt when whispering. Thus, in the notes on 26 cases I find (1) in six cases there is no information on the point; (2) in eight cases there is the definite statement that they do not stammer when whispering; and (3) whereas 12 cases did stammer on whispering, though not so frequently as in ordinary speech. The apparent amelioration during whispered speech is, I think, partly to be explained by the custom of speaking in this manner to intimates only in circumstances that are favourable to stammerers. The second reason is that the vocal cords are not entirely out of action during whispering. This was shown by Brucke and confirmed by Czermak. The sound in whispering is a fricative noise made by the air in passing between partially approximated cords. The distinction between voiced and voiceless letter remains unaltered during whispering except in degree.

Let us, then, now proceed to see how far the phenomena of stammering could be accounted for on the hypothesis that the primary delay lies in the respiratory mechanism. A stammer of the first variety can be completely explained on the supposition that the delay is primarily of the breath, but not on the supposition that it is of the larynx, for the latter would not account for arrest at the *very beginning* of any voiceless consonant, yet such an arrest is common. In the case, however, of the voiceless fricatives and a stammer of the first variety—e.g., a prolonged *f* or *s*—it would appear that the delay can be explained only on the assumption of a primary laryngeal sluggishness. It will, however, be recalled that in explaining this form of stammer in voiced fricatives on Wyllie's hypothesis we recognise the *feebleness of vocalisation* as the probable cause. Now feebleness of vocalisation is due to feebleness of the air blast. Hence, having accepted this explanation we are making no further assumption if we regard dwelling on voiceless fricatives as due also to feebleness of air blast. Thus the two main varieties of stammering are completely accounted for by the fact that in the first the breath is altogether at a standstill and in the second it is driven out feebly and ineffectually. If now we imagine the blast to be intermittent our stammering will take on the third and rarer form—namely, stuttering.

In order to inquire into the occurrences in the respiratory mechanism during speech, normal or otherwise, I had recourse to the pneumograph. Now in the pronunciation of a consonant there is a mechanical check to the breath due to the approximation of the lips or the tongue and palate in one of the so-called stop positions. This check is communicated to the thoracic wall and may be observed on the pneumographic tracing. It is more pronounced if the consonant be an explosive, less if it be a fricative; and it would seem reasonable to suppose that this mechanical check may act as a stimulus to the nervous delay, for it must be remembered that this delay is an active process and represents an exaltation of the inspiratory over the expiratory muscular mechanism. With regard to the vowels, I find there are two ways of initiating them when not preceded by a consonant. In the first the sound is begun perfectly smoothly (I do not mean aspirated). In the second the beginning is slightly explosive, giving the vowel a peculiarly incisive start. Unless the latter be much exaggerated the difference between the two methods is not marked and is only to be distinguished by careful listening. Now I can feel myself that a vowel begun in the second manner would lend itself to stammering, whereas the first method of beginning I cannot imagine as presenting a difficulty. In ordinary speech, I believe, it is usual to employ the second way in the case of vowels standing at the beginning of phrases—that is, to begin them in the incisive or slightly explosive manner—and it is only on such initiatory vowels that I have myself noticed a difficulty.

If the vocal cords be watched with a laryngoscope while a vowel sound is produced they are seen to behave as follows. In the first, or smooth method, the cords move up at once exactly into the position required for the note, leaving a narrow slit between them. In the second case the cords move up, meet in the middle, press against each other, and then open again into the position required for the note. In this way a consonantal sound, formed in the larynx itself, precedes the vowel. (We might term this a fourth stop position.) Further, it is to be noted that the effect on a tracing of the respiratory movements is exactly similar to that produced by a consonant.

FIG. 1.



A, Vowel begun in the smooth manner. B, Vowel begun in the explosive manner. The tracings read from left to right. The up-stroke represents expiration. The small dot indicates the moment at which the vowel was begun. This was determined by beginning on the beat of a metronome, whose tracing is seen below the respiratory curves. (The finer undulations on the respiratory tracings are due to the heart beat.)

If a tracing be taken of the abdominal movements by a pneumograph round the waist, for example, and the vowel *a* (as in car) be sung, but be broken in the middle by a *d*—thus, *a–da*; then, at the moment of saying the *d* there is a slight pause in the movement of the abdominal wall. If

now, in place of saying the first *a* the breath be allowed to escape quietly and then at a certain point the vowel *a* be begun, we see no pause on the respiratory tracing, provided the beginning is "smooth"; if it is of the explosive variety there is a definite check, exactly as with an explosive consonant. Two such tracings are here reproduced.[5] (Fig. 1.) Now in stammering on a vowel the glottis can be felt to close tightly, just as the lips are tightly pressed together in stammering on a labial, and since we have been led to regard the labial spasm as secondary to a primary vocal delay we may, I think, not unreasonably regard the spasm of the cords as secondary to a primary respiratory delay.

In the majority of cases of stammering the order of difficulty is—(1) vowels; (2) fricatives; and (3) explosives, in an ascending scale. And in treating such an occasional stick at the explosives often remains long after the fricatives have ceased to give trouble. I have put vowels lowest in the scale of difficulty, as I believe that to be usually the case. But, as might be anticipated from our previous observations, they are by no means always easy to stammerers and, indeed, in some cases present extreme difficulty. It is possible that this depends upon whether the speaker is naturally inclined to give them their explosive character or to begin them in the smooth manner with no preceding laryngeal closure. Consider now for a moment what probably occurs as the stammering habit is gradually developed in childhood. We may suppose that to begin with the child only stammers when the respiratory current is completely interrupted, as before an explosive. Later, as channels of overflow become smoother and secondary habits established, slight lagging of the breath is sufficient to produce a stammer and induce secondary delay in the laryngeal mechanism. Then the child begins to stammer on fricatives. Under treatment the troubles disappear in the reverse order to that in which they came. The relation which we have endeavoured to establish between the order of difficulty and the respiratory origin of the trouble receives indirect confirmation from the following exceptional case which I had the opportunity of examining. This was a small boy with a very severe stammer under the care of Mrs. Behnke, whose work in connexion with stammering and voice culture generally is so well known. Having arranged a pneumograph round his waist (he had already had some training in abdominal breathing) so as to record his respiratory movements I asked the patient to repeat some sentences. At the beginning of each phrase there was a long period of absolute silence during which his lips and the lower part of his face underwent writhing movements. During this period, however, the breathing did not cease; it became somewhat irregular and hesitating but the patient continued to breathe in and out, apparently through his nose. Now this is a very unusual form of stammering. As a rule the breath is held till the word is at length enunciated. Sometimes it is held so long that the patient goes blue in the face. Here, then, surely was a case in which the delay could not lie primarily in the respiratory mechanism. And the point I wish to emphasise is that in this case the common order of difficulty was reversed; the voiced fricatives and vowels gave him most trouble and the explosives least. It is possible that the trouble had been primarily respiratory, but that the laryngeal centres had developed secondarily such great irritability that they now constituted what was virtually a primary centre of disturbance and had indeed become the more "explosive" of the two. It would appear, then, that the assumption of a primary respiratory delay goes very far towards explaining both the order of events and their immediate origin in the common form of stammering. There are, moreover, further reasons for directing the attention to the respiratory mechanism in stammerers.

In 1891, three years before the publication of Wyllie's book, there appeared a monograph which, attacking the subject from a rather different point of view, is no less important. This is a reprint of a lecture given by the late Emil Behnke at the Central London Throat, Nose, and Ear Hospital.[6] In this lecture Behnke expressed the view that in the majority of cases the respiratory mechanism is that which is primarily at fault. His reasons for this statement were founded on practical experiments in treatment. He cited the enormous benefit derived from "diaphragmatic drill," or consciously controlled abdominal breathing. Since Mr. Behnke's death the treatment of stammering has been carried out along very similar lines by Mrs. Behnke. I have had the opportunity of seeing many of her cases at different periods during treatment, and I have become thoroughly convinced of the great practical value of directing the attention primarily to the respiratory mechanism. At my request Mrs. Behnke very kindly furnished me with notes on a considerable number of cases.[7] When I asked for information she had for some time kept careful records of the breathing capacity, chest measurements, stature, and age of her patients, and she very kindly undertook to make systematic inquiries on many other points, including previous illness, local disorders, &c. In the event I obtained (1) more or less detailed notes on 27 cases, 18 of which are male and nine female; (2) records of the age, stature, breathing capacity, and chest measurements of 66 cases (50 males, 16 females). One of the most striking things about the cases of which I have detailed notes is the high proportion of those who had suffered, or were suffering at the time they came for treatment, from morbid conditions in the upper respiratory passages, the nose and pharynx. Thus I find that out of 27 cases no less than 14 have a definite history of adenoids, enlarged tonsils, or some nasal obstruction. That is to say, over 50 per cent. were so affected, and possibly a larger percentage, as in some cases no definite information on the point was forthcoming. The cases of obstruction are made up as follows: (1) adenoids; (2) adenoids and chronic tonsillitis; (3) adenoids (as a child); (4) deflected septum and nasal obstruction; (5) chronic post-nasal inflammation, which had led to otitis media and deafness; (6) adenoids; (7) enlarged tonsils and deflected septum; (8) adenoids, enlarged tonsils; (9) adenoids, enlarged tonsils; (10) enlarged tonsils; (11) broken nose and deflected septum (since childhood), nasal polypi found on operation; (12) adenoids; (13) adenoids; and (14) adenoids and enlarged tonsils. In addition there are one case of otitis media of unrecorded origin and one a photograph of whom as a child suggests adenoids and who remembered having been taught to breathe through his nose at about the age of 12 years. Now the influence of chronic inflammatory and hypertrophic conditions of the nose and pharynx on the shape of the chest and on the respiratory function in general has long been recognised, and in practically every one of the above 27 cases it is recorded that the breathing was of the "high chest," as distinct from the "abdominal" variety. Further, an examination of the numerical data for 66 cases points to the fact that the breathing capacity of stammerers as a class is low.

Our knowledge of the breathing or vital capacity (Foster's "extreme differential capacity"—complemental + tidal + supplemental air) is chiefly derived from the work of Hutchinson.[8] Although he made a magnificent series of observations (over 2000) he unfortunately published no record of the individual observations. His tables contain only the arithmetic means (average) of observations for different ages, statures, &c. Thus we have no means of determining such important constants as the standard deviations, the probable error of the mean, &c. Further, modern statistical theory has shown that the arithmetic mean is usually not the best expression for the most characteristic value of a variate. Amongst the reports of the Anthropometric Committee of the British Association is a table constructed by Roberts from material collected by himself and Beddoe. Here again he gives averages only, and no record of the individual observations was published. However, as these appeared to be the best data available, I took them for comparison with the observations in stammerers. And in order that the results might be comparable I dealt with the latter in a similar way. The comparison shows a very marked inferiority in the vital capacity of stammerers of all ages to that of normal people. For the actual statistics I may refer the reader to the *London Hospital Gazette* for January, 1905,[9] where the observations will be found arranged in tabular form and compared for different ages and statures in the two sexes. It will be sufficient to cite here one example only.

[5] I cannot find that the respiratory phenomena during speech have hitherto been investigated with the pneumograph. That with which the tracings referred to in this paper were taken I constructed on the principle of "Brodie's bellows" and it proved very suitable for the purpose.

[6] Behnke: On Stammering, London, 1891.

[7] I should like to take this opportunity of recording my great indebtedness to Mrs. Behnke during this inquiry; her practical experience was as invaluable in any question of fact, as she was unstinting in the expenditure of time and trouble.

[8] Hutchinson: Transactions of the Royal Medical and Chirurgical Society, 1846.

[9] Worthington: On Stammering, London Hospital Gazette, January, 1905.

A comparison was instituted between stammering boys under 15 years of age and the boys of the Industrial School at Swinton. The returns from this school were pronounced by the Anthropometric Committee to be "a model of what such returns should be." The report also pointed out that "boys of this, the industrial class, are nearly seven inches shorter in stature and 24½ pounds lighter in weight than the first or standard class" (children of the upper and professional classes); and between stature and vital capacity Hutchinson's observations pointed to a high degree of correlation. In spite of these facts we find a very marked inferiority in the breathing capacity of the stammerers. Thus, for example, the mean vital capacity of the stammerers of 12 and 13 years of age (nine cases) is 88 and 109 cubic inches respectively, whereas in the industrial school children it is 166 cubic inches at both these ages. On the other hand, the mean stature of the stammerers is 57·5 and 60·9 inches for the two ages, and of the industrial children 52·5 and 54·0 inches, an average of six inches less. The stammerers being drawn from the upper and professional classes the last figure agrees closely with that given by the Anthropometric Committee. The statistics for adults were no less striking and a consideration of all the figures I think justifies the statement that there is evidence in favour of a real inferiority in the vital capacity of stammerers. The evidence is strong but not conclusive. Strong because (1) the mean difference between stammerers and normal people is large; and (2) the individual observations with very few exceptions all tend in the same direction. It is not conclusive, for that the observations compared were made by different persons with different instruments alone introduces many possible errors of unknown magnitude. To what, then, do these apparent deficiencies in the respiratory organs of stammerers point? Considering how close is the sympathy between any organ and the nervous centre controlling it and how morbid conditions of the one may be reflected in the other as, at any rate, some impairment in function, the inference suggested is that any want of promptitude in the action of the vocal mechanism as a whole probably has its starting-point in the respiratory half of that mechanism. And I would here point the argument by reference to an analogous disease.

In Allbutt's "System of Medicine" stammering is put into the same group as the occupation neuroses, of which writer's cramp is the best known, and with this a certain similarity of condition is pointed out. How close that similarity is, is not, I think, generally realised. Vivian Poore, writing on writer's cramp, has the following passage: "Now, directly an act which should be automatic begins to demand our attention for its execution the difficulties of executing such an act are increased a hundredfold. Fear of failure, especially before others, is ever present to the mind, and it would seem as if a certain proportion of that mental stimulus which ought to animate the muscles suffered what we have called emotional diversion and thereby caused increased muscular impotence. In every case of writer's cramp that the author has seen there has been an emotional factor. Those who have had the most obvious physical cause for their troubles have complained that their troubles are worst in the presence of others and especially when they have been called upon for official signatures before official witnesses." Substitute "stammering" for "writer's cramp" and the above passage may still stand almost unchanged. In writer's cramp there is the onset of spasm in the muscles of the hand on attempting to write, although those muscles may be perfectly effective for other actions. Thus Osler quotes the case of a distinguished gynæcologist who suffered from the disease in an aggravated form and yet retained all the finer movements necessary for his operating practice. A stammer of the speech, on the other hand, is accompanied by, and, as I have attempted to show, starts with, a spasm of the respiratory muscles. The spasmodic arrest of the diaphragm on the "silent stick" may be readily seen with the x rays (Mrs. Behnke). Yet apply the respiratory muscles to anything but ordinary speech, to singing or to quiet breathing, and there is no tendency to spasm. Further, it has been observed by Gowers and Poore that the most fruitful cause of writer's cramp is a cramped and defective method of writing—writing from the wrist rather than the elbow or shoulder, and it is supposed that, given a neurotic subject, this defective and laboured method of using the hand in writing reacts morbidly upon the nervous centres presiding over the action and produces a condition which has been well described as "irritable weakness." It is impossible to resist the suggestion of a very similar etiology in the case of stammering—namely, that defective conditions in the respiratory passages in the child, leading to an improper and laboured mode of breathing, especially during speech, when longer expiratory intervals are required, produce a similar irritable weakness in the centre for speech, a condition naturally spreading from that part of the centre particularly connected with the respiratory function.

Before passing to a consideration of treatment the conclusions at which we have so far arrived may be briefly summarised. They are as follows: That, if it be granted that stammering is due to a delay or want of promptitude in the action of the vocal mechanism, the phenomena are completely explained if we regard the delay as arising primarily in the respiratory half of this mechanism; that the phenomena are not completely explained if the delay be located as primarily in the action of the laryngeal mechanism, and only secondarily in the respiratory mechanism; and that there is evidence which points to an inferiority in the respiratory function in stammerers, independently suggesting that this may be the primary seat of the trouble.

ON TREATMENT.

My own experience being rather that of being treated than of treating I cannot pretend to dogmatise on this subject. All I shall do is to state in general terms the procedure which would appear to be the logical outcome of the view as to the nature of stammering, which I have endeavoured to justify in the previous part of this paper.

Following Kussmaul,[10] we may conveniently consider treatment under two heads, prophylactic and educative.

1. *Prophylactic treatment* will aim at inducing in the body generally, and in the organs concerned in speech in particular, as sound and vigorous a condition as possible, in order that the patient may the more readily respond to subsequent educative treatment. Stammering being essentially a neurosis it is hardly necessary to emphasise the importance of seeking for, and removing if possible, any causes of chronic nervous irritation or depression. An ample sufficiency of fresh air and exercise should be secured. Too little work is probably as bad for stammerers as overwork, as it lessens that power of mental control which is conservative of energy and which delimits the area of brain required for any action. The respiratory tract will especially demand our most careful attention. As a rule, it will be found that the respiration is of the thoracic rather than the abdominal type. Now Keith[11] has shown that the descent of the diaphragm is the most efficient way of aerating the lungs, and that smaller movements of this wall are required for the respiration of a given quantity of air, than of any other wall of the thoracic cavity. He has shown further that it is by the expansion of the diaphragmatic wall that the apices of the lungs are aerated, thus correlating the incidence of pulmonary tuberculosis in the two sexes at different ages with the assumption or otherwise of the so-called abdominal type of breathing. Hence there is every reason to encourage "diaphragmatic" or "abdominal" breathing and I think that the patient should be definitely taught to make use of this type of breathing. The effect of such training on the vital capacity of stammerers was well brought out in the records of Mrs. Behnke's 66 cases, the mean percentage increase being 31·3 after periods of treatment varying from a few weeks to several months. On turning the attention next to a point a little higher up the respiratory tract—the larynx—it may be found that the patient's voice is of interior quality. It appears that adult stammerers not infrequently speak in a rather high-pitched thin voice. The patient should then be given exercises which will enable him to place his voice in the proper register and at a lower pitch. Finally, the throat and nose must be examined, any obstruction should be removed, and the patient trained to breathe through his nose. Ideally, inspiration should always take place through the nose, even while, as in speech, the mouth is open.

2. *Educative treatment.*—Having thus attended generally to the health of the patient and the condition of his vocal organs the next thing to do is to train those organs to proper and coördinate action in speech. The exercises which have

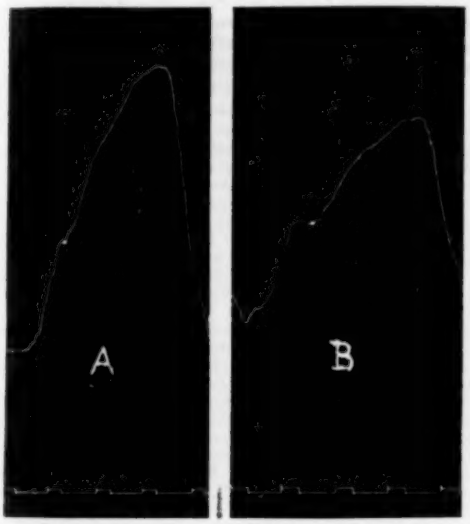
[10] Kussmaul: Disturbances of Speech, in Ziemssen's Cyclopædia of the Practice of Medicine.

[11] Keith: Hunterian Lecture on the Anatomy of Glénard's Disease, THE LANCET, 1903, March 7th, p. 631; also London Hospital Gazette, January, 1904, in a discussion on "Why does Phthisis Attack the Apex of the Lung?"

been devised for this purpose fall naturally into two classes: 1. Exercises in which the attention of the patient is directed towards the result produced, the method of producing it being thus indirectly controlled. 2. Exercise in which the attention is directed to the actual movements of some part of the mechanism of speech so as to predetermine the result produced. For example, if a passage be read aloud slowly and with exaggerated clearness and precision of enunciation it would form an exercise of the first class in articulation. If, on the other hand, the reader has acquired a knowledge of the exact position that the tongue and lips should occupy for the pronunciation of each letter, and in reading the passage he were consciously to put his articulatory apparatus through the requisite movements, then the exercise would be one of the second class. The value of exercises of this second class, provided they are of that part of the mechanism of speech which is the seat of the primary disturbance, is very great. Both classes lessen the frequency with which disturbances tend to arise. But the second class gradually gives the patient the power to avert an impending disturbance by deliberately controlling that part of the mechanism which is primarily at fault.

In the common form of stammering due, as I have endeavoured to show, to a respiratory delay the exercises we should naturally seek are such as will especially control the respiratory function. If the patient practises reading in a loud full voice, dwelling on the vowel sound in each syllable, and touching off the consonants as lightly as possible, he will be giving the respiratory function a good exercise of the first class. A full and loud voice implies a powerful expiratory blast; to dwell on the vowel sounds determines the blast being well sustained, and lightly to articulate the consonants causes the interruptions to the blast to be short (see Fig. 2). If next the patient directs his attention while he

FIG. 2.

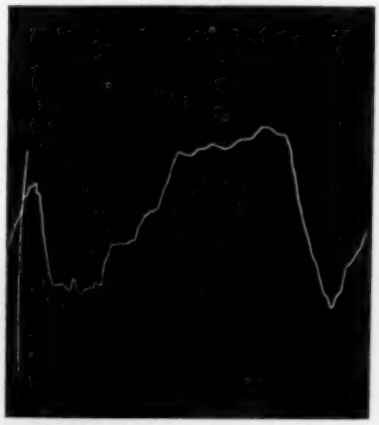


Showing the effect of (A) a consonant "lightly" articulated, and (B) the same firmly or "heavily" articulated, on the respiratory tracing. Each tracing represents the vowel sound *ah* broken in the middle by a *d*—thus, *a-da*. In ordinary speech the interruptions are as a rule very slight—often less than that in A.

is saying words in this fashion to the accompanying thoracic and abdominal movements so as to become actively conscious of them the exercise will be converted into one of the second class for the respiratory mechanism and will thereby, as I believe, possess additional value.

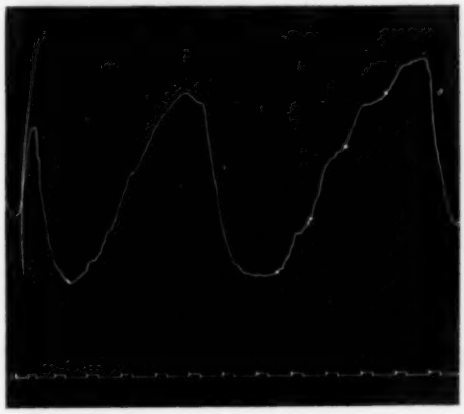
Now there is a quality of speech which is solely determined by a proper and orderly management of the breath—namely, rhythm. It has long been observed that stammerers read verse with greater facility than prose and advantage has been taken of this fact in their treatment. Colombat,[12] Merkel,[13] and in recent years Mrs. Behnke,[14] have taught the advantage of emphasising the natural rhythm of all speech. The observance of rhythm implies the raising of the intensity of the sound in the syllables on which the accent falls and the observance of a certain time relation between those syllables. This rise in intensity is solely dependent on a more powerful blast of air at the moment. Hence, if we exercise the stammerer in reading with an exaggerated rhythm we shall indirectly exercise the

FIG. 3.



A pneumographic tracing taken while saying the sentence, "*No less than fifteen men had passed the Conjoint.*" It was said fairly rapidly in an ordinary way, without particularly observing its rhythm.

FIG. 4.



Experiment to show the effect on a respiratory tracing of alterations in the intensity of the voice, uninterrupted by consonants, and the pitch remaining constant. The expiratory part (up-stroke) of the first curve represents the vowel sound *ah* sung with (fairly) constant intensity and at a constant pitch. The second curve shows the effect of raising the intensity of the tone on the beats of a metronome and letting it die away between the beats. The small dots indicate approximately the points at which the intensity was raised. It is to be noted that the pressure exerted by the respiratory muscles varies as the square of the velocity of the out-driven current of air, so long as the laryngeal aperture is constant. Hence the variations in pressure, which produce variations in the intensity of the voice, are proportional to the square of the amplitude of the accompanying waves in the pneumographic tracing. Thus very slight undulations in the tracing may be evidence of quite appreciable variations in the muscular activity.

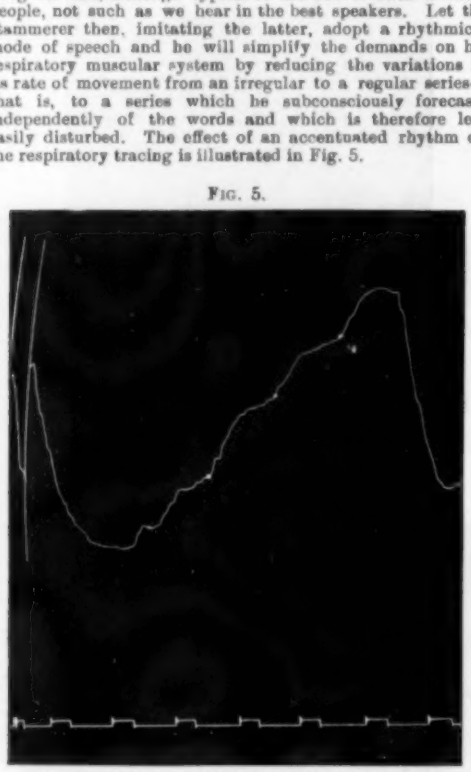
[12] Colombat: Traité de tous les Vices de la Parole et en particulier le Bégaiement, Paris, 1843.

[13] Merkel: "Stammeln" und "Stottern," in Schmidt's Encyklopädie der gesammten Medicin; also Ph, siologie der Menschlichen Sprache, Leipsic, 1866.

[14] Mrs. Behnke: The Speaking Voice, London.

expiratory act in a series of augmentations and retardations (exercise of first class). Merkel, however, made the great mistake of saying that "during the entire expiratory interval (in speech) the respiratory muscular system should be kept at the same degree of tension." A study of the pneumographic tracings of the respiratory movements during speech completely disproves this view, for in ordinary conversation certain syllables are always accentuated above others,[13] and these variations in intensity are all accompanied by variations in what Merkel termed the tension of the respiratory muscular system (see Fig. 3; also Fig. 4). The rhythm, however, in the example given (Fig. 3) is very irregular and, although typical of the conversation of most people, not such as we hear in the best speakers. Let the stammerer then, imitating the latter, adopt a rhythmical mode of speech and he will simplify the demands on his respiratory muscular system by reducing the variations in its rate of movement from an irregular to a regular series—that is, to a series which he subconsciously forecasts independently of the words and which is therefore less easily disturbed. The effect of an accentuated rhythm on the respiratory tracing is illustrated in Fig. 5.

FIG. 5.



Pneumographic tracing of the sentence, "*Every tone must be clear and distinct,*" spoken slowly and with the rhythmical syllables accentuated and slightly prolonged. The beginning of each accentuated syllable is indicated by a small dot on the tracing.

After a little practice with a pneumograph on myself, observing both the tracing point and my own sensations simultaneously, I found that I very quickly became conscious of the finer variations in the rate of movement of the respiratory muscular system, and not until he has acquired or perfected this consciousness is the stammerer in a position to give his respiratory mechanism perfect exercises of the second class in the movements required in speech. My own plan has been as follows: to take an elastic belt and to tie it moderately tight round the waist about midway between the umbilicus and sternum. In this way I found it easier to focus the attention on the abdominal and lower thoracic movements. I then read aloud some lines which I knew well, accentuating the rhythm by a voluntary exaggeration of the expiratory movements, and with the attention so far as possible concentrated on these movements. Of all the many forms of exercise that I have tried I consider this to be the most efficient, having regard to the time expended in such exercise.

It is a pity that the public do not realise that there is a sense in which the cure of stammering is probably never complete. A stammerer cured is not the same as a man who has never stammered. Without incessant watchfulness on his part his malady is certain to recur. The recognition of this would prevent much disappointment and misapprehension—misapprehension which too often arises from a belief that the secret of cure is some specific in the hands of this or that practitioner. The treatment of every case is essentially individual, and the experienced trainer takes advantage of any slight peculiarities which can be turned to account in establishing a habit of control. Nevertheless, we may perhaps be permitted to summarise the general principles as follows: 1. Remove, as far as possible, any local physical inferiority in any of the organs concerned in speech. 2. Determine in what part of the mechanism the disturbance primarily arises and which of the phenomena are secondary. 3. Ignore the latter, but devise exercises of the second class for the former. 4. Endeavour to induce in the stammerer a constant habit of speech which shall itself be an exercise of the first class.

Southsea.

[13] If they are not, the voice, although it may vary in pitch, becomes monotonous and wearisome and the speaker himself quickly tires. Such appears to be the most fruitful cause of "parson's sore throat."

PHLEGMONOUS CHOLECYSTITIS.

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PHLEGMONOUS cholecystitis may be defined as a severe form of acute inflammation of the gall-bladder going on to suppuration in the wall of the gall-bladder or even to local or general gangrene. Robson tells us that this—the "acute progressive empyema" of Courvoisier—was first described by Potain in 1882, but it will be found that Wilks and Moxon mention that acute idiopathic inflammation "with formation of pus in the wall or great infiltration of it with lymph or ulceration have been met with in fever and in cholera." Robson relates some cases in his book and another in his Hunterian lectures (1904) in which the condition was due to gall-stones impacted in the lower part of the common duct. Suppuration of the pancreatic ducts also occurred and the patient died on the fourteenth day. It is, however, admittedly rare and but little mention of it will be found in most of the larger text-books, though Rolleston gives a full account of it. The fact that three cases of it have come under my observation in the last few years shows that it is not so rare as to be negligible. It is, moreover, practically certainly fatal from peritonitis with or without perforation or from toxæmia unless it is recognised and dealt with. Even after operation the mortality is exceedingly high.

Phlegmonous cholecystitis is somewhat difficult of diagnosis and liable to be mistaken for acute intestinal obstruction, acute pancreatitis, and acute appendicitis. In a case published by Hotchkiss and in one of my own the mischief was thought to be appendicular before operation. In Lane's case[1] acute obstruction of the large intestine was diagnosed, and indeed existed, as the result of pressure from effused lymph. In a case of Roswell Park[2] a diagnosis of appendicitis was also made, but acute suppurative cholecystitis with gall-stones was found. This case recovered after operation. D. A. K. Steele[3] relates a case which was treated by incision and died suddenly from pulmonary embolism on the eighth day and another in which a fæcal abscess formed with subsequent discharge of gall-stones through the operation wound. Sheild, in 1895,[4] records a case of perforation, possibly from typhoid fever, and quotes Murchison on the subject. Richardson[5] relates and comments upon nine cases of varying degrees of severity, only one or perhaps two being actually gangrenous. In the Transactions of the Philadelphia Academy of Medicine for May, 1904, G. Davis mentions a case of gangrene associated with calculus. A pericystic abscess existed and in spite of cholecystectomy the patient, a man, aged 70 years, became delirious and died after some weeks.[6] Gibson reported a case to the New York Surgical Society of discharge of

[1] THE LANCET, Feb. 25th, 1893, p. 411.
[2] Bacillus coli communis, Annals of Surgery, 1893.
[3] Annals of Surgery, vol xii.
[4] THE LANCET, March 2nd, 1895, p. 534.
[5] American Journal of the Medical Sciences, vol. cxv.
[6] Annals of Surgery, 1904.

a sloughing gall-bladder, probably a result of calculous cholecystitis.[7] Lilienthal mentions eight cases of gangrene out of 42 cholecystectomies in his own practice; seven were calculous. All the patients recovered. It does not appear, however, that all were of the fulminating type.[8]

Many cases of perforation of the gall-bladder due to, or associated with, typhoid fever, and in some instances with calculi also, are to be found on record, but in most the clinical picture is different from that of the acute gangrenous or phlegmonous or fulminating cholecystitis—whichever title may be preferred—which we are now considering. However, typhoid fever and gall-stones must be considered as the most common causes of the disease. Typhus fever, malaria, sepsis after operation, and puerperal fever are other assigned causes. Probably irritation of the gall-bladder by calculi, with resulting secondary infection by the bacillus coli with or without other organisms, is the most common sequence. One of my cases apparently shows that chronic pancreatitis may be the initial lesion and it is probable that appendicitis may be a cause of this as it is of other gall-bladder troubles.

The symptoms of phlegmonous cholecystitis are somewhat as follows. The onset is usually but not always sudden. There are pain and tenderness in the gall-bladder area and there is usually vomiting. Distension and rigidity are present and more marked on the right side. Constipation is the rule. Toxic symptoms with prostration are usually most severe. A failing pulse, with delirium, dry tongue, twitching, suppression of urine, urticaria, rigors, and rapid emaciation may all be present with other complications also. Jaundice is variable and does not always appear. Fever is usually, though it is said not always, present—it may be ague-like in character. It may or may not be possible to feel the gall-bladder. When the peritoneal cavity is opened a coating of lymph may cover the exterior of the gall-bladder and adjacent parts, or a cavity may be broken into of which the boundaries are doubtful; or, on the other hand, the gall-bladder may be quite distinct even though gangrenous in places. The gall-bladder, whether large or not, may be green or purple or black in varying patches. The contents may be bile or bile and pus with blood in uncertain proportions and may be thin or so viscid as not to escape from a large needle puncture. Finally, calculi may or may not be present either single or in large numbers.

In any case where there is a suspicion of phlegmonous cholecystitis an immediate operation is no doubt demanded. The exposed gall-bladder should be incised, emptied of calculi or bile, and drained, or if it is gangrenous and the patient is not too feeble it should be removed (cholecystectomy). The surrounding area will need cleaning and draining if it is infected.

The chief dangers of the condition are: death from general toxæmia or peritonitis with or without perforation. A certain proportion, however, recover. Other complications are parotitis (as in one of my cases), suppression of urine, and cholangitis, as well as the other troubles that may accompany any severe inflammatory condition. Bacteria of several kinds were found in one of my cases but apparently no organisms other than those usually present in acute inflammations in connexion with the alimentary tract. The diplococcus in one of my cases was of doubtful nature. The diplococcus pneumoniæ has been found as in one of Richardson's cases.

A brief account of my three patients is appended.

CASE 1.—On Feb. 20th, 1897, I saw, with Mr. G. Byrne of Chorlton, a man, aged 31 years, who had been suddenly attacked with pain in the right iliac area while he was at business. He, however, went about until the 19th when he was seized with violent pain and sickness. Delirium with a temperature of 101° F. and marked iliac swelling were then observed by Mr. Byrne. On the following day his temperature was 100·5°. There was a well-marked hard mass in the right iliac region reaching nearly to the umbilicus. The swelling was fairly well defined and in its centre was a softened spot near McBurney's point. He was flushed and sweating. He had never had a previous attack of the like nature. Believing the condition to be one of acute appendicitis I opened the abdomen. A quantity of yellowish serum escaped and the tissues were rather œdematous. In the right iliac fossa there was nothing wrong, but on feeling further the gall-bladder, enormously distended and as hard as a solid mass, was felt reaching down to the umbilicus. The great thickness of the abdominal wall and the depth of the gall-bladder prevented us from bringing it up to the surface. It was black in appearance and looked as if it were gangrenous. About ten ounces of black bile were drawn off and the gall-bladder was fixed by sutures and incised. Ten gall-stones of the size of maize escaped and within the next two months 342 more calculi came away, leaving at that time a small sinus with slight bilious discharge. Altogether 402 calculi were discharged and in May, 1898 the patient was in good health, except that he said he could still feel "stones rubbing together" and the scar was somewhat yielding.

Possibly a more radical operation would have given more complete and rapid good results, but the patient's condition and the circumstances of the operation were not favourable for a prolonged manipulation.

CASE 2.—In July, 1902, I saw, with Dr. A. J. Jefferson of Rochdale, a man, aged 68 years, who had been ill for a week. He improved somewhat with rest but three days later had severe pain with swelling in the right hypochondrium. His temperature was 103° F. and there was slight jaundice. He had not vomited. After a dose of morphine he seemed better. When I first saw him the temperature had fallen to 100°, his pulse was 115, but his tongue was dry and brown and there was obvious distension of the gall-bladder. The abdomen was opened and the gall-bladder was found to be greatly distended and surrounded by recent adhesions. In places it was on the verge of gangrene and contained brownish fœtid bile and five or six gall-stones of the size of peas. The bladder was opened and stitched into the wound.

Dr. Jefferson informed me that the patient went on fairly well at first but died about five days later from collapse. In this instance also the man was much too ill and broken down to bear any such operation as cholecystectomy, which would no doubt have been desirable. We do not know the exact cause of the subsequent fatal collapse, but it is likely that performation may have occurred.

CASE 3.—On May 22nd, 1906, a man, aged 52 years, an ex-soldier and commissionaire, was admitted to my ward at the Royal Infirmary. He had served in India and had had malaria but neither typhoid fever nor dysentery. Six years ago he had a slight attack of supposed appendicitis but was ill only for about a week. Since then he had been well, except for dyspepsia, until May 13th. On this day he was seen by Mr. J. T. Smith of Chorlton-road for abdominal pains and sickness. On the 12th he had very severe epigastric pain with a rigor. There were jaundice, local tenderness over the gall-bladder, and rigidity; the temperature was 99·2° F., the motions were loose and pale, and the urine was high-coloured. The temperature continued high but he was otherwise better until the 15th, when he had another rigor. Delirium and suppression of urine followed and, though a temporary improvement occurred during the next two days, he again became delirious, with a quickening pulse and a temperature of 102°, and on the 21st there was again suppression of urine.

On May 22nd the patient was admitted to the Royal Infirmary. On admission he was seen to be very feeble and thin, with moderately deep jaundice. He was delirious and had subsultus tendinum. The abdomen was somewhat distended and rigid and a swelling could be obviously felt in the region of the gall-bladder. The tongue was dry and the whole condition was suggestive of profound toxæmia. On the same afternoon the abdomen was opened and the presenting gall-bladder was incised after failure of an attempt to draw off the contents through a syringe. About three ounces of dark green bile too viscid to flow through the needle escaped. The walls of the gall-bladder were thick, soft, coloured with various patches of green and purple, and apparently gangrenous. No calculus was found either in the bladder or ducts nor could any cause of obstruction be felt. The liver was enlarged and greyish in colour. Though the man bore the operation fairly well it was not thought wise to excise the gall-bladder and it was therefore fixed in position and drained. Its walls were friable and tore easily. On the 23rd he was still delirious and twitching. A good deal of bile had escaped. He had swelling of the left parotid gland which was enlarged to the size of a small orange and evidently very tender. The fever was less. The urine was free from albumin but still contained bile. On the 26th the jaundice was less marked and all the symptoms had improved, but on the 27th parotitis appeared on the right side and on the next day a

[7] Ibid. [8] Ibid

slight purulent discharge from the left ear and patches of softening in the left parotid were found. Incisions were made in the left gland. Phenate of soda mouth-wash had been used since the first appearance of parotitis but the mouth was persistently dry. On the 30th urticaria was noticed all over the body; otherwise he was much in the same condition. The pus from the parotid was found to contain numerous staphylococci and the bile contained staphylococci, bacilli coli, and some large diplococci. The patient went on without any marked improvement until June 8th, when hiccough and vomiting came on and he died on the 10th.

At the post-mortem examination the liver showed dilatation and inflammation of the ducts (cholangitis); no gall-stones were present. The head of the pancreas was enlarged and was the seat of chronic inflammation. Possibly the inflammation of the pancreas may have caused the obstruction or have been the result of extension of inflammation from the gall-bladder, probably the former, since the process was chronic and its appearance at first suggested the presence of growth.

Though it is not possible to draw any hard-and-fast line between the milder forms of acute cholecystitis and this fulminating or gangrenous variety, there appears to be sufficient ground for a clinical distinction as there is in inflammation of the appendix. I am not aware of any observations as to the occurrence of gangrene of the gall-bladder as a result of localised obstruction to its main blood-vessels, though it is not unlikely that this might occasionally occur, and Robson alludes to it. Probably many other cases have been met with and perhaps recorded, for the disease is a striking and terribly fatal one, though Murphy[1] says that all of his cases (he does not say how many) operated on before the third day recovered.

The present paper formed the basis of a clinical lecture and the record of the third case is from notes mainly taken by my house surgeon, Mr. R. E. Ferguson, and one of my dressers, Miss Alice Oberdorfer. For the bacteriological report I am indebted to Dr. E. B. Leech.

Manchester.

Reviews and Notices of Books.

Lehrbuch der Physiologischen Chemie. (*Manual of Physiological Chemistry.*) By E. ABDERHALDEN, *Privat docent* for Physiology in the University of Berlin. Vienna and Berlin: Urban and Schwarzenberg. 1906. Pp. 787. Price 18*s.*

THE researches of Dr. Abderhalden in certain departments of physiological chemistry are well known to all workers in this branch of knowledge. Formerly a pupil of Professor von Bunge of Basle Dr. Abderhalden has now enrolled himself amongst the *privat-docenten* in Berlin. The present volume consists of 30 lectures, which though extensive in range, do not cover the whole ground of physiological chemistry. They deal more especially with subjects which permit of being treated comprehensively and which at the same time form well-recognised large chapters in the subject. Especially do we find in them suggestions that stimulate thought and foreshadow new lines of research, while the broad yet explicit account of the various subjects is aided by a sound selection of literary and bibliographical references.

The general scope of the treatise can be understood from a summary of the titles of the lectures. The introductory lecture is particularly suggestive. In it the author takes a wide view of his subject, and finding no narrow artificial distinctions within the domain of chemistry, deals in a uniform manner with the chemistry of living organisms, animal and vegetable. Four lectures are devoted to the carbohydrates, their constitution, their allies, their formation, their uses, and their decomposition in animal and vegetable organisms. One lecture is allotted to compounds of which lecithin and cholesterin are examples. The albuminous bodies or proteids naturally occupy a prominent place, and they receive lengthy treatment under the headings of elementary composition, the unity and subdivision of the group, the integral constituents of proteids, and their constitution. These particular lectures contain one of the best expositions of the recent work of Kossel and his pupils, and above all the famous researches of Professor Emil Fischer of Berlin. The formation, metabolism, and destiny of proteids in plants and animals are there carefully set forth, while a special lecture is given to their decomposition in the tissues and the final products of proteid metabolism. Nucleoproteids and their decomposition products form the subject of the thirteenth lecture.

Two lectures are devoted to the fundamental question of the relation between fats, carbohydrates, and proteids. Like his master, von Bunge, Dr. Abderhalden rightly gives much attention to "inorganic salts." Oxygen and oxidation in the animal economy follow next, while the succeeding lecture deals with ferments. Two lectures cover the subject of the intestine and its glands and the following are the titles of the subsequent lectures: "Blood and Lymph," "Excretion of Metabolic Products," "The Relation of Individual Organs One to the Other," and "Total Metabolism." The last two lectures are extremely suggestive. They are grouped under the generic title "Ausblicke," or Peeps into the Future, deal with such subjects as precipitins, heredity, sarcoma and carcinoma, toxins, antiferments, and all the most recent developments of what might be called biological therapeutics. They make fascinating reading, especially for those who realise how enormous are the strides that have recently been taken towards the synthetising of our chemical knowledge, using the word "chemical" in its broadest interpretation.

It is with great pleasure that we welcome this admirable treatise, in which will be found many old problems viewed from a new aspect and many new problems treated with originality by a writer deeply imbued with a knowledge of physiological chemistry in all its aspects.

[1] Twentieth Century Practice of Medicine, vol. ix.

Appendicitis: its Pathology and Surgery. By CHARLES BARRETT LOCKWOOD, F.R.C.S. Eng., Surgeon to St. Bartholomew's Hospital, &c. Second edition. London: Macmillan and Co., Limited. 1906. Pp. 342. Price 10*s.* net.

THERE is no lack of treatises on the diseases of the appendix and their treatment, and this is one of the best. It does not attempt to embrace all that has ever been said about the diseases affecting the appendix, but it limits itself to appendicitis. The first 40 pages of the book are concerned with the anatomy of the organ and need no further mention. The chief characteristic of the remainder of the book is the frequency with which the author describes the microscopic appearances of the diseased appendix in the cases narrated. This has not been done to the same extent in any other work on the subject with which we are acquainted. This microscopic evidence gives a firm basis of support to the deductions which the author makes. Fairly detailed notes are given of 112 cases and these serve as excellent illustrations of the points mentioned. The incision preferred by Mr. Lockwood is that described by McBurney; the appendix is amputated by the circular method, the peritoneal and muscular coats being turned back. The author is a little sarcastic when he points out that the "sleeve" of peritoneum usually described really consists of the muscular and peritoneal coats, though he acknowledges that before he examined specimens microscopically he himself was under the impression that only the peritoneum had been turned back. The account of the after-treatment of cases of appendicitis where an operation has been performed is good. The book is, on the whole, a

record of Mr. Lockwood's own experience and therefore is more valuable than a mere *résumé* of the work of others.

Modern Surgical Technique in its Relations to Operations and Wound Treatment. By C. YELVERTON PEARSON, M.D., M.Ch. R.U.I., F.R.C.S. Eng., Professor of Surgery, Queen's College, Cork; Fellow and Examiner in Surgery, Royal University of Ireland; Surgeon to the North Charitable Infirmary and County and City of Cork General Hospital, &c. Illustrated with two coloured and other plates and 111 illustrations in the text. London: John Bale, Sons, and Danielsson, Limited. 1906. Pp. 392. Price 10*s.* 6*d.* net.

THIS is a carefully written and trustworthy book on the surgical technique of the present day. The first part deals with surgical bacteriology and the mode of ingress of bacteria, and gives a description of the chief antiseptics. The second part treats of the disinfection of the hands of the surgeon and his assistants, the patient's skin, and the instruments, sponges, and dressings. The next section is occupied with the arrest of hæmorrhage and the methods of closing wounds. In the last part are treated the preparation of rooms for operation, the general procedure of an operation, and the after-treatment of the patient. Thus it will be seen that the book supplies information of subjects often inadequately dealt with in ordinary text-books of surgery. The chapter on asepsis in general practice is good and should be very useful, especially to those whose student days preceded the introduction of antiseptic and aseptic methods. The author speaks of "hypodermatic" injections but calls the syringe employed a "hypodermic" syringe. Etymologically hypodermatic is more correct, but time and convenience have justified the use of hypodermic; at all events, it is inconsistent to employ both forms. In America hypodermatic is nearly always employed but in time it will certainly give place to the shorter form.

Annual Report of the Sanitary Commissioner with the Government of India for 1904, with Appendices and Returns of Sickness and Mortality among European Troops, Native Troops, and Prisoners in India for the Year. Calcutta: Office of the Superintendent of Government Printing, India. 1905. Pp. 294. Price Rs. 3, or 4*s.* 6*d.*

THIS report commences by summarising the meteorological phenomena of the year, and it is seen that on the mean of the year the temperature generally was slightly lower than usual; the barometric pressure generally exceeded the normal; both the absolute and the mean relative humidity were generally excessive over Upper India, but defective elsewhere; and the rainfall generally was in excess. Passing on to the consideration of the European army in India we see that the chief causes of death were, as usual, enteric fever and abscess of the liver, the former accounting for 34·7 per cent. and the latter for 12·6 per cent. of the deaths. The mortality for all diseases, excepting tubercle of the lung and hepatic abscess, was less than in 1903. The invaliding statistics, amongst other points, show that the rate for bilharzia was less than in the previous year. Cholera was also less prevalent in all classes of the population.

With respect to malarial fever, the returns now asked of medical officers demand far greater work from them than formerly, for they have to classify correctly the different forms of the disease, to give an account of the anopheles as occurring at their respective stations, to describe the measures directed against these insects, to narrate the other methods of prophylaxis undertaken, and to give details of the prevalence of malaria amongst the native population as judged by the examination of the blood of native children under ten years of age. As one of the results of this more thorough-going inquiry it was found that the "benign" form of malarial fever greatly preponderate over the "malignant" varieties, no less than 89 per cent. being held to belong to the former class. It was also observed that a large proportion of the admissions were in reality not new infections but readmissions, pointing to the necessity of a liberal use of quinine both for treatment and for prophylactic administration. Other means of preventing malaria were the use of mosquito curtains, the employment of "mosquito brigades," and the distribution of quinine to the inhabitants of the native bazaars.

With respect to enteric fever, further experience has shown that there are limitations to the rôle played by the drinking water in the dissemination of the disease, and that there are other modes of infection, notably infection by contact, in which the method of transmission may be by the infective material being taken up on the fingers either from the soiled body of the patient or from the bedclothes or utensils used by him. Infected milk and raw vegetables also play their part, whilst flies are evident agents in the propagation of the disease. The favourable conclusions of Major W. B. Leishman, R.A.M.C., as to the efficacy of anti-typhoid inoculation are narrated. With regard to the advantage of using the serum test for diagnosis, it is stated that results were yielded which aided materially in the formation of an accurate opinion. In Section III., which relates to the native army in India, amongst other facts, we note that there were 70 cases of enteric fever with 16 deaths, and that of these 70 cases 16 were distributed among Gurkhas, the admissions again following the rule observed in former years that the disease was exceptionally prevalent among Gurkha troops; the diagnosis was based upon clinical signs and symptoms and also in many cases on Widal's test.

Scurvy seems to have been somewhat prevalent during the year 1904, the high rate of admission for this disease being due to the inclusion of the statistics of the troops serving in the Somaliland field force. Tubercle of the lungs, it is satisfactory to note, is less prevalent. This is due in great measure to its diminished prevalence amongst the Gurkhas; and here be it noted that the 2nd Gurkhas, amongst whom a few years back it presented the largest number of admissions, no longer appear amongst the regiments with the higher number of admissions—a result which is doubtless attributable to the better ventilation and improved form of their barracks. In Section IV., relating to the jails in India, the reader will find some apposite remarks relating to the rôle played by the amœba in dysentery. The remaining sections of this interesting report are occupied with the vital statistics of the general population, with the chief diseases affecting it, with the general history of vaccination, and with the sanitary works carried on during the year.

Among the concluding general remarks, those on Malta fever in India, a dozen cases or so of which are mentioned, on the Leishman-Donovan parasite, and on syphilis are especially noticeable. The usual appendices close the volume. A very complete review of the subject of plague is embodied in the work; the whole subject is most exhaustively discussed and the difficulties with which the authorities in India have to contend are well shown.

LIBRARY TABLE.

Handbook for Midwives and Maternity Nurses. By COMYNS BERKELEY, M.B., B.C. Cantab., M.R.C.P. Lond. With 58 illustrations. London: Cassell and Co., Limited. 1906. Pp. 283. Price 5*s.*—This little book has been written by Dr. Comyns Berkeley for the use of women presenting themselves for the examination of the Central Midwives Board, and in writing it he has kept carefully in view the rules which the Board has laid down for the training and practice of midwives. In Part I. the anatomy of the female pelvic organs is shortly described, while Part II. is devoted to the physiology and pathology of pregnancy. A good deal of

space is rightly given to the question of ante-partum hæmorrhage. Parts III. and IV. deal with the physiology and pathology of labour and the puerperium respectively, and Part V. with the newly born child. Part VI. has for its subjects domestic sanitation, asepsis, and antisepsis. The book is well and succinctly written, the author having taken great care to define clearly the circumstances in which the midwife must not attempt to treat the various condition on her own initiative but must send for medical assistance. In describing abdominal palpation Dr. Comyns Berkeley adopts a somewhat curious nomenclature, calling the various manipulations superior, median, lateral, inferior, and pelvic respectively. This seems to us an unnecessary complication and likely to be misunderstood by the ordinary midwife. The simplest possible names should be used in a book intended for women of this class, whose general education is often rather limited. Speaking generally, in such a manual as we are noticing it is easy to err on the side of going too minutely into details. We fancy that the chapter on infant feeding will prove far beyond the comprehension of many of those who hope to obtain certificates as midwives. The tables which are quoted from Lewis, Starr, and Holt, whilst of the greatest possible value, seem to us more suited to the understanding and needs of the medical practitioner than to those of the midwife. We cannot agree with the author when he says that the expensive method of percentage feeding, in which a prescription is written for the milk required, is the best. Theoretically, it is no doubt a good method, but the practical difficulty of insuring accuracy in carrying out the prescriptions renders it of but small value. This little manual will no doubt prove of considerable value to the intelligent woman who is aiming at becoming a certificated midwife, but if it represents the standard aimed at by the examiners at the present time then it seems to us that the standard is a great deal too high, and it is little wonder that candidates complain of the severity of the Board's examination.

An Elementary Text-book of Inorganic Chemistry. By R. LLOYD WHITELEY, F.I.C., F.C.S. With 137 illustrations. London: Methuen and Co. 1905. Pp. 245. Price 2*s.* 6*d.*—Not a few elementary text-books receive harsh treatment from the reviewer because they are designed for use by those who are studying a given subject on the lines of an examination syllabus. Such criticism may be very unfair. These books are akin to cheap goods—they are demanded and no pretence is made that they contribute in any sense to the sum of human knowledge or that there is anything original about them except, perhaps, in regard to plan. Many of them detail exactly the same facts and often enough on the same plan. Still, every teacher has his own idea as to how to present the principles of science to his pupils, and those who do their best in trying circumstances to teach on sound educational lines are the authors whose elementary manuals are valuable. We are glad to place Mr. Whiteley in this category, for his book bears evidence of his experience as a teacher and of his capacity to marshal the facts of elementary chemical science in proper sequence. The book is redeemed from the character of a mere crib or student's guide by the fact that a good portion of the work is devoted to a consideration of the significance of experimental results. It thus introduces the beginner to the practical value of what he is learning.

JOURNALS AND MAGAZINES.

The Dublin Journal of Medical Science.—To the July number Sir William Thomson contributes a paper on a further series of cases of Enucleation of the Prostate, advocating the suprapubic route and discussing the complications which may be encountered. Dr. S. H. Law writes on training the voice for purposes of singing, and Dr. Albert Gresswell and Mr. George Gresswell advocate the use of vaporised medicaments in the treatment of Eustachian deafness.—In the August number is published the first part of Mr. E. Hastings Tweedy's clinical report of the Rotunda Hospital. It contains, of course, many points of obstetrical interest, among which we may note the fact that the use of gloves for all obstetrical operations in the hospital has been followed by gratifying results. Dr. Walter P. Cockle describes some cases of pneumonia among the troupe of pygmies who came over to this country, as Dr. W. H. Gregory has already done in our columns;[1] and Dr. T. H. Peyton writes of the Stokes-Adams "syndrome" in an interesting fashion.

The Edinburgh Medical Journal.—The August issue of this magazine contains three papers of obstetrical interest—namely, one on the Mental Disorders of Pregnancy by Dr. Nathan Raw; one on Physiological Changes in the Maternal Organism, especially alterations in internal secretions, by Dr. H. Oliphant Nicholson; and one questioning the existence of a Decidua Reflexa by Dr. James Oliver. Professor Ralph Stockman writes on the formation and action of salicyluric acid in the body, pointing out the rapidity with which salicylate of sodium changes into this comparatively inert substance and the consequent need of large doses. Mr. Alexander Miles publishes the first instalment of a paper on his experiences in cases of perforated gastric and duodenal ulcers. Dr. R. W. Johnstone deals with the subject of pentosuria and emphasises the importance of bearing this condition in mind in examining candidates for life insurance.

The Scottish Medical and Surgical Journal.—The August number is entirely devoted to a series of articles on the subject of Intussusception and contains no editorial or other matter besides. Dr. Henry J. Dunbar contributes what is practically a monograph on the subject, occupying over 50 pages and dealing with all the aspects of the disease. He pronounces emphatically in favour of immediate laparotomy as treatment, without previous inflation or injection of fluid, and this counsel is repeated by all the contributors. Dr. A. N. McGregor discusses the statistics of intussusception and Mr. John Marnoch and Mr. David M. Greig give notes of series of cases. Dr. T. J. Thyne, writing on the symptoms of the malady, lays stress on the collapse and subnormal temperature met with, and on the almost invariable presence of a palpable tumour in the earliest stage.

The Birmingham Medical Review.—The second Ingleby lecture, delivered by Dr. C. E. Purslow, appears in the July number of this periodical. It deals mainly with the attitude which is best for parturition and with the expulsion of the placenta, but many other points of practical interest are noted. Mr. W. Edward Bennett writes on Congenital Dislocation of the Hip and gives the notes of a number of cases illustrated by numerous skiagrams; the article is not concluded in this number. Mr. Leonard P. Gamgee discusses the treatment of Curved Tibiæ which he classifies for the purpose in five different groups according to the nature of the deformity.

New Inventions.

A NEW "OBSTETRIC" BEDSTEAD.

WHEN furnishing the labour wards of the new St. Mary's Hospital, Manchester, it was desired to obtain a bed which might be rendered firm and rigid during parturition but which would be comfortable when required for a longer period as is so often necessary in serious midwifery cases—i.e., eclampsia, placenta prævia, &c. Most of the well-known hospital furnishers were applied to but they did not

[1] THE LANCET, August 18th, 1906, p. 429.

appear to have anything to answer the double purpose. Messrs. Isaac Chorlton and Co. of Blackfriars-street, Manchester, offered to make a bed from my design to which they added many improvements of their own, with the result that we now have a very comfortable bed easily convertible into a firm, solid, and immovable "obstetric" couch. This has been in use at St. Mary's Hospital for some months and has proved to be most satisfactory. It consists of a strong iron bedstead made to a convenient height for obstetric operations and fitted with a good spring mattress. When required for parturition this mattress is rendered firm and taut by a strong zinc-covered table, which being brought into close contact with the under side of the spring mattress in its full width effectually prevents any springiness or yielding of the mattress surface during operations. This table is easily moved up or down, even when the patient is in bed, by means of a screw and handle fixed to the foot of the bed. The legs are on castors which can be thrown out of action so as to allow the bed to rest on rubber pads, thereby rendering it practically immovable during operations. The bed is very strongly made, all the parts are accessible for easy cleaning, and the table moves quickly and so easily that a nurse can elevate it into position with one hand. Any further particulars may be obtained from Messrs Chorlton and Co. who have now placed the bed on the market.

WILLIAM FLETCHER SHAW,
Resident Obstetrical Assistant Surgeon, St. Mary's Hospital.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

(1) TABLOID LAXATIVE FRUIT PASTILLES; (2) TABLOID MENTHOL AND EUCALYPTUS PASTILLES; AND (3) TABLOID MENTHOL PASTILLES.

(BURROUGHS WELLCOME AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

1. THE laxative fruit pastille contains as its active ingredient five grains of senna fruit which produces a gentle laxative effect as opposed to the sometimes griping effects following the administration of preparations of senna leaves. The basis is a firm jelly which is pleasantly flavoured. This pastille affords a very agreeable form in which to administer a mild yet effective laxative. 2. The menthol and eucalyptus pastille contains one-twentieth of a grain of menthol and half a minim of eucalyptus oil in the same gelatin basis. They are designed for the treatment of ulcerated or catarrhal conditions of the mouth and throat. They are said also to relieve hoarseness. 3. The menthol tabloid contains one-eighth of a grain of menthol in a similar gelatin basis but no eucalyptus; it is an agreeable means of administering the soothing effects of menthol.

THE "M.D." DISINFECTANT CREAM.

(THE M.D. DISINFECTANTS CO., 103A, DALBERG-ROAD, BRIXTON, LONDON, S.W.)

We have submitted this preparation to examination and have found it to contain well-known powerful antiseptic and deodorant agents. It consists of a milky fluid exhibiting a marked alkaline reaction. It is, in fact, an emulsion containing amongst other things phenol derivatives. It is well adapted for domestic sanitary purposes and it contains no ingredient which is likely to injure or to stain the articles on which it may be used. It, perhaps, should be pointed out that the letters M.D. signify microbe destroyer. We think that there is some danger in the use of the word "cream" in connexion with a powerful disinfectant fluid not intended for internal administration.

THE DERCETIS CIGARETTE.

(DERCETIS AND CO., 67, LEADENHALL-STREET, LONDON, E.C.)

The claim which interests us most in regard to this cigarette is that it is made with specially selected tobacco free from all added flavouring and of such quality as to be smoked without irritating effects. According to microscopical examination the claim is to some extent substantiated, for the tobacco proved to be of one pure kind, and while the smoke is decidedly free from irritating qualities, it possesses that peculiar pleasing aroma on account of which choice Dubec tobacco is by many smokers preferred.

CAPE COLONY MINERAL WATERS.

(LEWIS ATKINSON, CAPE OF GOOD HOPE GOVERNMENT. COMMERCIAL AGENCY, 73, BASINGHALL STREET, LONDON, E.C.)

Two samples of natural mineral waters called respectively Van Riebert and Vasco-de-Gama have been sent to us for examination. Both have their origin in springs situated at Tygerberg Cape District, Cape Colony. According to our analysis the waters show only slight differences in chemical composition, while the one from the Vasco spring is only just saturated with carbonic acid gas. The Van Riebert water effervesces briskly and was found to contain mineral salts to the extent of 1·62 grammes per litre. The common salt amounted to 1·4 grammes, sodium sulphate to 0·11 gramme, and the alkalinity in terms of sodium carbonate amounted to 0·13 gramme. It is a very pleasant table water and free from excess of alkaline salts. We could trace no organic impurity. As shown in the analysis, it is only slightly mineralised but exhibits a distinctly alkaline reaction. The water from the Vasco-de-Gama spring contains rather more mineral matters, amounting, in fact, to 3·03 grammes per litre. They consisted chiefly of common salt, 2·34 grammes, together with sodium sulphate, 0·26 gramme. The alkalinity in terms of sodium carbonate amounted to 0·26 gramme. This water has a slightly saline taste and is very "clean" on the palate. There was no organic impurity. These waters resemble certain of the alkaline carbonated waters of well-known continental springs and are probably just as satisfactory dietetically.

PURE TOFFEE.

(E. WORTH, 95, CATHORNE-STREET, ROUNDHAY-ROAD, LEEDS.)

Toffee, of course, is not only a confection but also a food, since it should contain carbohydrate in the form of good cane sugar and fat in the form of butter. The specimen sent us satisfied the demands indicated and is evidently made from good materials. It is somewhat light in colour and, according to our analysis, contains 16·38 per cent. of fat. The flavour bespeaks the use of honest materials in its preparation.

DIASTASE COCOIDS.

(OPPENHEIMER, SON, AND CO., LIMITED, 179, QUEEN VICTORIA-STREET, LONDON, E.C.)

Cocoids consist of a cocoa basis containing a very active diastase. The same enzyme is contained in palatinoids. We have assured ourselves of the activity of the enzyme on starch. It rapidly liquefies starch jelly and ultimately converts it into maltose. There are obvious advantages gained in many cases of administering the enzyme apart from malt sugar with which it is associated so largely in malt extract.

REID'S STOUT.

(THE STAG BREWERY, PIMLICO, LONDON, S.W.)

This stout contains a higher proportion of malt extractives than any malt liquor we have previously examined. The extractives, in fact, amounted to 10·44 per cent. and contained 7·0 per cent. of proteid matters. The mineral matter rich in phosphate amounted to 0·54 per cent. The soundness of the stout is, to some extent, evidenced in the fact that the volatile acidity, apart from carbonic acid, amounted to 0·06 per cent. The alcoholic strength was equal to 7·93 per cent. by weight of absolute alcohol. If stout is nourishing, and there is reason for thinking that it is, this stout should be pre-eminently so. The flavour is richly malty and free from the acidity and "hardness" due to the use of carbonic acid gas other than that produced in the fermentation of the beer.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT TORONTO.

(FROM OUR SPECIAL CORRESPONDENTS.)

THE SECTIONS.

MEDICINE.

THURSDAY, AUGUST 23RD.

Dr. ASCHOFF (Freiburg), after thanking the Section for the opportunity of bringing forward his own work and that of his pupil, Dr. Tawara, announced his intention of speaking on

The Pathological Basis of Irregularity and Failure of the Heart Muscle.

Dr. Tawara had, he said, examined 112 hearts systematically in all parts in such a way that no inflammatory alterations of any significance could escape observation. The surprising result was arrived at that it was only in a small percentage of cases that any inflammatory change at all was found, and that when found it was seldom of such an extent as to account for the feebleness of the heart observed during life. Among the cases investigated there were 25 of valvular disease mostly of rheumatic origin, 16 of acute or chronic nephritis, six of arterio-sclerosis, nine of pneumonia, bronchitis, or emphysema, seven of typhoid fever, five of scarlet fever, four of diphtheria, one of measles, 11 of tuberculosis, eight of malignant tumour, and eight of septic diseases. Only in the cases of diphtheria were parenchymatous changes found at all regularly distributed. Next in order came the cases of valvular disease, although only in a small percentage were recently acquired interstitial changes to be observed. These nodules were of specific character and were found especially in the tissue surrounding the arteries and in the subendothelial connective tissue. Anæmic necroses, or so-called infarct indurations arising from them, were more common in valvular disease and were probably the cause of the majority of the indurations found in heart muscle in cases of chronic valvular disease; but these were hardly of sufficient extent to account for the weakness of the heart in these cases. The explanation of this weakness had therefore to be sought elsewhere, and Dr. Aschoff had made the suggestion that it might be that it was those groups of cardiac muscle fibres which were of special significance for the action of the heart which were affected. Accordingly he had asked Dr. Tawara to examine especially the auriculo-ventricular bundle described by Stanley Kent, and in greater detail by His. The recently published work of Retzer and Brunig gave a careful account of the structure of this bundle, and this had been greatly extended by Dr. Tawara. The bundle began at the anterior edge of the coronary vein and then passed forward on to the right side of the auricular septum below the foramen ovale, lying close upon the auriculo-ventricular septum. Just above the insertion of the median flap of the tricuspid valve it formed a special thickening and then penetrated the fibrous septum and ran dorsal to the ventricular septum, dividing then into two main branches which passed obliquely downwards one on either side of the ventricular septum. Each was inclosed in a connective tissue sheath of its own and was completely isolated from all other muscle. These main branches passed down the septum to enter the anterior and posterior papillary muscles and thence they went to the wall of the ventricle. The right main branch was fairly narrow, but the left spread out in a fan-like manner and was usually visible to the naked eye in the human heart. Histologically, the whole bundle showed a smaller amount of sarcoplasm compared with ordinary heart muscle fibres. The fibres interlaced and were more reticular and might even fuse with one another. Since they contained fewer fibrils they stained less readily than ordinary heart muscle fibres. This pale colour had been referred to fatty degeneration, but this was quite erroneous. It was also proved by these researches that the so-called fibres of Purkinje were really nothing more than the main branches of the ventricular part of this auriculo-ventricular conducting system. Their peculiar structure—viz., their pale colour, their small amount of fibrillary substance, and their connective tissue sheath—rendered them characteristic. It was important to remember that they were only found in the ventricles and that at the nodule above described at the entrance into the ventricle a sudden change occurred, since in the auricles the fibres were strikingly slender. Dr. Aschoff referred to the experiments of Hering and Erlanger and the importance of this bundle in this respect, and then recorded some observations on two cases of Stokes-Adams disease which he had investigated. In one case there was a severe sclerosis of the small arteries which traverse the knot and the principal trunk of the conducting bundle; in the second there was a very marked development of adipose tissue in the same place, the whole heart presenting a condition of fatty infiltration. Future investigations would perhaps explain the occurrence of sudden death in these cases and determine how far the main trunk of the conducting bundle had suffered a break in continuity. Moreover, although it was quite certain that by disturbances in the main trunk irregularities in the heart's rhythm, if not complete cessation, could be brought about, further research would be necessary to determine whether inflammatory changes in the separate primary or smaller branches might not produce disturbances of the heart's action. Dr. Aschoff was, however, of opinion that it was only when a wide area of the conducting system was destroyed or when the ventricular part was permanently separated from the auricular that there was danger of gradual or sudden heart failure.

Dr. J. MACKENZIE (Burnley) said that for many years he had been awaiting an explanation of some of the phenomena of heart block and the researches of Dr. Aschoff had supplied an anatomical basis for that explanation. It was to a Canadian, G. T. Romanes, that they were originally indebted for their present knowledge, for his experiments on the neuro-muscular structures of the medusa had started Gaskell on his researches. Dr. Mackenzie illustrated by diagrams and tracings the mode of conduction of the contraction wave from auricle to ventricle to explain his contention that in arrhythmia the auricle preserved its rhythm, while the ventricle failed to respond from time to time to the conduction waves reaching it from the auricle. He registered by a special polygraph the movements in the jugular vein, in the radial pulse, and also in the apex beat. In some of his tracings he paid especial attention to the time between the appearance of the auricular systole and the appearance of the carotid pulse—this he called the *a c* interval, which included the time taken for the impulse to pass to the ventricle and the presphygmic interval (i.e., the time between ventricle systole and the opening of semilunar valves). This interval he regarded as the most useful guide to the condition of the function of conductivity—of the conducting fibres from auricle to ventricle, since the presphygmic interval was fairly constant. Using this as a guide, he showed by means of a series of very interesting tracings various forms of arrhythmia and partial heart block and their dependence upon loss of the conductivity of the conducting fibres. He referred to the action of digitalis and pointed out that its action depended upon the character of the injury which the heart had sustained. He demonstrated some tracings showing the effect of digitalis in producing a mild form of heart block, depressing the conductivity of the conducting fibres. He was of opinion that no advance would be made unless the various functions of heart muscle worked out by Gaskell were generally considered.

Dr. JOSEPH ERLANGER (Madison, Wisconsin) said that it was well known that the contraction wave originating in the venous end of the heart and transmitted through the bulged portions of the heart wall suffered an appreciable delay, or normal block, in crossing the auriculo-ventricular junction. The delay in man lasted for about one-fifth of a second. The term "heart block" as applied to mammals indicated a state in which the passage of the contraction wave through the auriculo-ventricular junction was interfered with. He referred to the original experiments of Stannius. His, in 1895, shortly after his description of the auriculo-ventricular bundle which now bore his name, carried out some experiments on its function, and these were extended ten years later by Humblet and Hering. Simultaneously Dr. Erlanger had investigated the phenomena of heart block in animals with specially devised apparatus and was able to confirm on the mammal every stage of heart block obtained by Gaskell in his epoch-making experiments. His results were briefly as follow. With very slight compression of the conducting fibres from auricle to ventricle there was noted merely a lengthening of the normal

pause between the auricular and ventricular contractions—i.e., a lengthening of the intersystolic period. At this stage it was usual to find that the successive intersystolic periods lengthened until eventually the ventricles failed to respond to one of the excitation waves, and therefore the ventricle failed to contract. In the next cycle after this so-called ventricular silence the intersystolic period was unusually short. In succeeding cycles it again progressively lengthened until at length another ventricular silence resulted. Such silences sometimes recurred regularly with every tenth, ninth, or eighth auricular beat, and so on until the ventricles contracted only with every other auricular beat—i.e., these exerted such a degree of block that only every second wave acted as an efficient stimulus. This was a condition of partial block with a two-to-one rhythm. Upon further compression a further degree of partial block might be obtained at which every third or fourth beat of the auricles only was followed by a ventricular beat. The explanation was that after each contraction the irritability of the heart muscle fell to zero, but soon began to increase again until it was once more sufficiently excitable to contract, when a sufficiently strong excitation wave arrived, and in these cases of heart block it might take the time of two or more auricular beats for this to occur, the intervening excitation waves being insufficient to produce contraction. In ordinary circumstances complete dissociation of the beats of the auricles and ventricles—i.e., complete heart block—followed upon partial block of the 3 to 1 type, and not infrequently upon 2 to 1 or 4 to 1 rhythms, but very rarely upon higher rhythms. This was probably due to the fact that the mammalian ventricles possessed a spontaneous rhythmicity, and therefore when the interval between effective excitation waves became longer than that between the spontaneous beats, the ventricles began to beat independently of the auricles. In such a case there resulted complete dissociation of auricular and ventricular beats, although the block was not absolutely complete. It was practically impossible to recognise when a degree of compression became such that a complete block was interposed to the passage of the excitation wave. This could only be done by cutting the auriculo-ventricular bundle, a fact which was now admitted by all recent investigators. Since this bundle was the only demonstrable muscular connexion between the auricles and ventricles it was probable that in mammals at least conduction through the heart was muscular. It did not, however, prove conclusively the myogenic theory, since nerve fibres ramified through the bundle. The method had been applied to determine the action of cardiac nerves. Experiments by Hering and by Dr. Erlanger himself had shown that the accelerators acted directly upon both regions of the heart—i.e., auricles and ventricles. Stimulation of the vagus in the dog produced the usual inhibition of the auricles, but it was doubtful whether the vagi acted upon the ventricles. Hering stated that they did but Dr. Erlanger had never observed the slightest slowing of the ventricles. The results of sudden compression of the auriculo-ventricular bundle were also recorded. Sometimes the phenomenon called "stoppage of the ventricles" resulted, the auricles continuing to beat while the ventricles remained quiescent for a considerable period of time, due to the sudden cessation of the normal excitatory waves from the auricles. Another interesting observation brought forward was the effect of increasing the rate of the auricles in conditions of partial block, the result being the development of a higher degree of block owing to the diminution in the efficiency of the auricular excitatory wave. Dr. Erlanger also referred to the association of cerebral symptoms with stoppage of the ventricles in cases of Stokes-Adams disease and regarded the medulla as the probable seat of these changes. Considering cases of heart block in man, it might be stated that, as far as they knew, heart block in man was due to disease of the auriculo-ventricular bundle. In all cases of Stokes-Adams disease which had come to necropsy since the cause of heart block in mammals had been discovered a lesion in that bundle had been found. All grades of partial and complete block had been observed in man. In regard to the cerebral symptoms they were preceded by the stoppage of the ventricles. Dr. Erlanger was inclined to believe that either the brain or the heart might be the cause of the syncopal attacks.

Dr. G. A. GIBSON (Edinburgh) pointed out two other methods by which the separate rhythm of the auricles and ventricles might be demonstrated in cases of heart block. One of these was by means of the fluorescent screen and the other was by using Lippmann's capillary electrometer. He recorded a case of cardiac failure associated with slight jaundice but without valvular lesion. The patient subsequently showed signs of partial heart block, with a high systolic blood pressure and a relatively low diastolic pressure and eventually died. At the necropsy there were obliteration of both pleural sacs and a condition of pericardial adhesion. On dissecting out the auriculo-ventricular bundle it was found to be paler in tint than in the normal heart. No other change was found in the musculature of the heart elsewhere but on histological examination the bundle was found to be scarred by fibrous tissue and its muscular tissue showed a less typical structure than that of a normal heart examined for comparison. Dr. Gibson confirmed the observation of Dr. Erlanger that atropine increased the auricular rhythm without affecting that of the ventricles in conditions of heart block. Dr. Gibson exhibited the specimen derived from his case and presented it to the museum of the University of Toronto.

Dr. W. S. MORROW (Montreal) described two cases of arrhythmia observed by himself. The first case was in a man, 40 years of age, and was due to failure of contractility, the result of too frequent heart action. The jugular pulse was sometimes as rapid as 200 per minute, while frequently the arterial pulse occurred only at every second or third venous pulse. The second case, which occurred in a boy, aged 13 years, was one of auricular extra-systole. The condition eventually disappeared spontaneously. Dr. Morrow illustrated his views by an ingenious diagram, and while expressing his admiration for Dr. Mackenzie's work differed from him in certain details, maintaining that Dr. Mackenzie's ventricular wave should be regarded as an onflow wave.

Sir JAMES BARR (Liverpool) recorded the case of a man, aged 60 years, who presented an extremely slow pulse with repeated attacks of unconsciousness. The pulse was often as low as 17 beats to the minute and sometimes as low as 12. He exhibited tracings showing the irregularity and infrequency of the pulse and the effect of various conditions upon it. He expressed himself as doubtful of the explanation usually given of these cases, as he regarded the so-called myogenic stimulation of the ventricular systole as unproven. He regarded the blood and the tension at which it existed in the heart as stimulating the beat.

FRIDAY, AUGUST 24TH.

Dr. F. J. SMITH (London) read a paper on

The Treatment of Typhoid Fever.

Dr. Smith in 1901, in a paper published in THE LANCET,[1] protested against the routine treatment of cases of typhoid fever and advocated greater latitude in the matter of diet, provided care were taken to avoid hard and indigestible materials, the sharp edges of seeds and fruits, the skins of grapes and oranges. He advocated the use of meat, eggs, and fish, provided that no distension were produced. He protested against the withholding of food from a hungry patient simply because the thermometer showed that the temperature was not normal. He gave practically no food in the early stages, when the patient had no appetite and was suffering from a foul dry tongue, but in later stages when the patient was hungry he allowed him food and said that his sympathies were entirely with the patient in this matter. He gave some interesting and striking statistics in support of his practice in this respect.

Dr. ROBERT HUTCHISON (London) said that he was much impressed by Dr. Smith's statistics and that he saw no objection to a more liberal diet in typhoid fever. The fear of causing injury to ulcers was illusory for the food material was in a fluid state before it reached the cæcum. The advantages of a milk diet were probably chemical rather than mechanical. In his opinion, it was important to individualise in this matter and especially to avoid any routine diet. If a patient strongly desired any food it was probable that he would be able to digest it.

Dr. G. W. MCCASKEY (Fort Wayne, Indiana) pointed out that there was a larger percentage of indigestible débris from milk than in the case of any animal food. It was possible that this might account for certain idiosyncrasies met with in regard to milk diet in certain people. He was opposed to a routine milk diet and would recommend meat, possibly with the purin bodies removed from it, for he believed that they formed a good culture medium for micro-organisms.

[1] THE LANCET, Feb. 2nd, 1901, p. 312.

The PRESIDENT of the Section (Sir THOMAS BARLOW, London) remarked that there was a great deal to be said for Dr. Smith's proposals, which were important also from the point of view of convalescence, since it was probable that under such conditions the period of convalescence would be shorter and the liability to thrombosis lessened. It might be of advantage to consider whether the same ends might not be attained without giving solid food. A method suggested by Trousseau was very useful—meat was finely scraped and boiling broth was poured upon it. If milk were disagreeable to the patient fish or meat put through a sieve might perhaps be given, while eggs might be employed. Grape juice carefully strained from stones and skins was very useful and grateful to the patient. In certain gastro-intestinal cases he had found great benefit by giving the patient a little juicy meat, allowing him to chew it and then afterwards spit out the fibre, but it was only to be employed with an intelligent patient. Milk was not so harmless as it was often supposed to be, because of the large craggy masses of clot which might be formed in some cases unless suitable diluents were employed.

Dr. SMITH, in reply, said that it was difficult to define the meaning of solid food, since all food was reduced to the liquid condition in the bowel. His own contention was that the patient should be given food if he asked for it, but that if he did not want it it should be withheld and water given.

Dr. W. G. SPILLER (Philadelphia) read a paper on a case of

Syringomyelia, with a Cavity traced from the Sacral Region to the Upper Part of the Internal Capsule.

A brief account was given of the clinical features of the case. At the necropsy a cavity was found which commenced in the sacral region at the left posterior horn, and extended through the left posterior horn through the lumbar region into the thoracic and cervical region where it involved both posterior horns. In the medulla the pyramids were nearly destroyed and above it there was a cavity extending from the right pons through the crusta to the internal capsule just below the lateral ventricle on that side. In no other recorded case had a condition of syringobulbia been observed to extend so high. Sometimes the bulbar symptoms in cases of syringomyelia were produced by other lesions and in such cases the prognosis was worse than if they were due to a bulbar lesion.

Dr. J. J. PUTNAM (Boston) read a paper on

A Comparison of Certain Modern Philosophic Doctrines with Reference to their Bearing on the Therapeutics of Psychasthenia.

Dr. Putnam pleaded for a more philosophic basis for mental therapeutics and deprecated the divorce of natural science from purely philosophical studies.

Dr. S. FLEXNER (New York) read a paper of considerable interest and importance on

The Serum Treatment of Cerebro-spinal Meningitis.

At the outset he pointed out that his observations were purely experimental and had not been applied to the disease in man. Recently there had been an epidemic of the disease in Greater New York, 4000 persons being affected, with a mortality of 75 per cent., and a committee had been appointed by the Board of Health to investigate the disease. The experiments had been carried out for this committee. The cases were found to be due almost exclusively to the diplococcus intracellularis of Weichselbaum. It was found that this organism had a brief period of vitality apart from the body. As obtained from human cases it had not a high degree of pathogenicity for the ordinary laboratory animals, but he had found that a toxin of considerable potency could be obtained from it. It did not, however, yield an extra-cellular toxin but by disintegration an intracellular or endo-toxin was set free. From this toxin he had endeavoured to obtain an antitoxin. He found that the diplococcus would produce the disease in monkeys, with lesions comparable to those in man. He had found it possible by means of an anti-serum to bring about amelioration, sometimes with abrupt cessation of the symptoms and recovery. If a dose which would ordinarily prove fatal were given to a monkey at the same time as an injection of the anti-serum the animal did not suffer from the disease. The micro-organisms disappeared partly through lysis, partly through phago-cytosis. Even when the antitoxin was given so long as six hours after the toxin the disease was prevented. He had given the serum by intra-dural injection but had since found that subcutaneous injection was also effective. The serum acted by the neutralisation of poisons and partly by preparing the organisms for phagocytosis. He thought that there were other points to be investigated before the treatment could be extended to man.

Dr. J. LINDSAY STEVEN (Glasgow), referring to a recent outbreak of the disease in Glasgow, mentioned its extremely fatal character and looked forward with hope to the prospect of the application of Dr. Flexner's results to man.

Dr. A. MACFARLANE (Albany, New York) spoke of Lenhartz's method of treatment by repeated lumbar puncture.

Dr. GEORGE DOCK (Ann Arbor) read a paper on

Paracentesis of the Pericardium: Its Indications and Methods.

After some preliminary remarks on the liability of pericarditis to be overlooked and on the established fact that operations could be performed in cases of wound of the heart, Dr. Dock suggested that a bolder course in regard to exploration of the pericardium might be profitable. Exploration would establish the presence of fluid, determine its character, and also effect its removal. Dr. Dock discussed the various places at which the operation might be performed and pointed out that the heart in cases of pericardial effusion was often close to the anterior wall of the chest and that therefore the presence of fluid might be missed on mere insertion of a needle while there was danger of puncture of the heart. At the same time puncture by the aspirator was of undoubted value in some cases both for diagnosis and treatment. It should be carried out under aseptic precautions and the needle should be introduced slowly. Various sites suggested for aspiration were mentioned, but if there were extensive effusion it was better to puncture at the lower border of the pericardium in the left costo-xiphoid space. While the immediate effects of the removal of the fluid were striking it was very frequent for it to recur. More radical operations were now being recommended and Dr. Dock spoke highly of the method introduced by Allingham.

Dr. H. A. MCCALLUM (Toronto) referred to the value of the signs obtained by examining the back described by Dr. Ewart and also of the use of the phonendoscope in the diagnosis of the disease. He described a case in which a large quantity of pus was evacuated.

The PRESIDENT agreed that the fluid often accumulated at the back of the heart. This made him chary of the free use of the aspirator. He favoured the method of paracentesis by incision.

Dr. MCCALLUM read a paper on

Gastric Neurasthenia.

He stated that there was no known functional disease of the stomach that might not have its origin in neurasthenia, while neurasthenia might be present for years with no other symptoms than those of dyspepsia. All dyspeptics who tire easily should be suspected of neurasthenia, while viscero-ptosis was a very important sign. Intestinal disturbances, such as pain, flatulence, diarrhœa, or constipation, were often associated. In regard to treatment patients were often managed with difficulty by their ordinary medical attendant, and it was important to recognise that many months would be required for treatment. Rest, feeding, an open-air life, and massage were all useful, but the most essential element in the treatment was the training of the mind and body.

Dr. PUTNAM referred to the frequent occurrence of a cardio-pulmonary murmur in these cases, especially in men.

Dr. MCPHEDRAN thought that the rôle of visceroptosis in neurasthenia had been exaggerated by Dr. McCallum.

Dr. WALSH objected to the use of the words gastric and neurasthenia for the condition described by Dr. McCallum.

Dr. CAMPBELL MEYERS (Toronto) read a paper on

The Pre-insane Stage of Ante-mental Disease.

The PRESIDENT, in a short speech, congratulated the Section on the work done and the sectional work then concluded.

SURGERY.

THURSDAY, AUGUST 23RD.

The Surgical Treatment of Duodenal Ulcer.

Dr. WILLIAM J. MAYO (Rochester, Minnesota) opened the discussion on this subject by pointing out that ulcer of the duodenum was a good illustration of "the living pathology"

which surgery was evolving, the condition having until recently masqueraded under the title of gastric ulcer, especially in its chronic forms, or remaining undiagnosed until perforation or hæmorrhage compelled attention. At least 40 per cent. of all gastric and duodenal ulcers were situated primarily in the duodenum. The fact that they were so frequently diagnosed to be gastric could be explained by their situation, which in 95 per cent. of cases was within three-quarters of an inch of the pylorus. Three out of every four duodenal ulcers were found in males. The pre-operative diagnosis could usually be made. Involvement of the peritoneum meant localised pain and muscular rigidity to the right of the epigastrium. In the majority of cases there was extensive induration and much adhesive inflammation of the surrounding viscera, indicating a past chronic perforation. The contents of the duodenum were relatively sterile and in the upper part not large in amount, circumstances favouring localisation of the lesion. The differentiation between duodenal and gastric ulcer could usually be made, but in some cases it was impossible, while in not a few the ulcer involved both viscera or there was a separate ulcer in each. The chief indications for surgical treatment were the pain, chronic underfeeding, and disability produced by the passage of the gastric contents over the ulcer base, or interference with gastric drainage due to complicating obstructions. To the surgeon two courses were open—excision of the ulcer or diversion of the irritating material, the latter having by far the larger range of usefulness. When possible the posterior "no-loop" method of performing gastro-jejunostomy should be resorted to and the upper jejunum should be attached to the stomach wall in the line in which it normally lay, the distal end passing to the left. Of a total of 188 duodenal cases seen by himself and his brother, Dr. Charles Mayo, 175 were operated on for chronic ulcer with two deaths, ten for acute perforation with four deaths, and three for repeated acute hæmorrhage with one death. Of 103 cases traced after operation 93 were cured or greatly improved and ten were not improved or had relapsed. The best way to reach a duodenal lesion was by a vertical incision through the rectus muscle three-quarters of an inch to the right of the median line. In searching for the pylorus in cases where adhesions were present the best guide was to be found in the arrangement of the blood-vessels. Close to the gastric side of the pyloric ring would be found a vein extending from the inferior surface upwards fully half-way across the point of the pyloric end of the stomach. From the superior border another vein, less prominent but regularly placed, extended downwards in the same line. While these veins did not usually meet their appearance was sufficiently striking to define the parts. The causes of duodenal ulcers were the same as gastric and were to be found in the changed secretions of the stomach, especially the excessive acidity which under certain conditions at present unknown eroded the mucous membrane. This was shown by their practical limitation to the duodenum above the entrance of the alkaline bile and pancreatic secretions and by the occasional development of a typical ulcer in the jejunum near the orifice of a gastro-jejunostomy opening.

Mr. GEORGE C. FRANKLIN (Leicester) said that his personal experience of the operative treatment of duodenal ulcer was limited to a few cases. The symptoms of perforation which had impressed him most were the intense agonising pain conjoined with localised muscular rigidity. Where perforation had not occurred the diagnosis was more difficult. The symptoms were often of long duration and in not a few cases the thickened and indurated tissues had been mistaken for malignant disease. Gastro-enterostomy was a certain and safe cure for the condition and should be strongly urged by the surgeon. Cicatrisation often led to stenosis and all the symptoms of pyloric obstruction. Perforation demanded immediate laparotomy with closure of the duodenal rent, peritoneal cleansing, and local drainage. Gastro-jejunostomy should be done on a subsequent occasion.

Mr. J. B. MURPHY (Chicago) complimented Dr. Mayo upon the manner in which he had attracted the attention of the medical profession to the frequent occurrence of this lesion. That he himself had been influenced was shown by the fact that he was now finding one case of duodenal ulcer for every three cases of gastric ulcer, whereas only four years ago the proportion was 1 in 12. The point which he would like to discuss at greatest length was that of perforating ulcer. It was difficult to estimate the frequency of perforation but it was smaller than that of the similar complication of gastric ulcers. The differential diagnosis of duodenal from gastric ulcer perforation was extremely difficult and practically impossible except in so far as it was derived from the clinical history previously to perforation. Here certain signs were of great importance, such as the time of onset of pain after the ingestion of food. In gastric ulcer pain appeared immediately, or within a very short time afterwards. Duodenal ulcer, on the other hand, gave rise to pain experienced after a greater interval, in correspondence with the later emission of food through the pylorus. Another sign of importance was the fact that the pain of duodenal ulcer was actually temporarily relieved by the fresh administration of food since this inhibited the discharge of material through the pylorus into the duodenum. Dr. Mayo had emphasised the importance of hyperchlorhydria in the causation of duodenal ulcer, but embolism and thrombosis must be considered as factors of primary interest. In general the symptoms of perforation were similar to those due to perforation of other parts of the intestinal tract—pain, localised sensitiveness to painful stimulation, rigidity of the abdominal wall confined at first to the right side of the abdomen, &c. Collapse was never present as an early symptom of peritoneal perforation. It was generally due not to the direct consequences of the lesion but to the absorption of the products of infection from the peritoneal surface, and this did not take place until the endothelial cells were destroyed. The great importance of anticipating such later consequences was shown by the comparatively greater success of operative measures undertaken within 30 hours of the lesion over that of those undertaken later. When operating for the relief of perforation it was essential to remember that suture of the leaking point was the first necessity with drainage of the peritoneal cavity following upon this. The statistics of operations showed clearly that drainage without suture was worse than useless. The performance of gastro-enterostomy was sometimes rendered especially difficult by the presence of a retroperitoneal loop of jejunum which turned upwards from the brim of the pelvis to enter the peritoneal cavity at a point a short distance below the level at which the duodenum crossed the aorta.

Dr. A. J. OCHSNER (Chicago) wished to draw attention to some peculiarities in the anatomy of the duodenum. There was considerable evidence that there was a sphincter capable of cutting off the upper portion of the duodenum from the remainder. In this upper chamber the food was, by special muscular movements, more intimately mixed with bile and pancreatic juice. This portion was frequently found dilated and bile-stained when the lower was not. He had made a considerable number of dissections and had found such a sphincter represented by an increase in the number of circular muscular fibres below the point of entrance of the common duct. This, in his opinion, introduced a new mechanical element into the possible causation of duodenal ulcer.

FRIDAY, AUGUST 24TH.

The discussion on

The Treatment of Acute Septic Peritonitis

was introduced by Mr. C. J. BOND (Leicester). After alluding to the activity of the diaphragmatic portion of the peritoneum in absorbing both fluid and solid particles and to its great phagocytic powers, he pointed out that the patient's organism must take the first steps in repelling the invasion. The surgeon by his incisions, his irrigation, and his drainage practically acted the part of an ambulance corps department to the body, conveying away dead and dying combatants on both sides and preventing further poisoning which would result from their retention on the battle-field, while at the same time promoting the arrival of further reinforcements of phagocytic defenders. The so-called chemical peritonitis in the absence of bacterial infection did not exist, at any rate clinically, and the peritonitis succeeding internal hæmorrhage, as had been pointed out by Dudgeon and Sargent, was due not to the effused blood but to the staphylococcus albus which was constantly present in the blood clots. The bacteriology of acute septic peritonitis depending on perforation of, or escapes of organisms through, the wall of some portion of the alimentary canal differed according to the region involved. Gastric and duodenal contents were usually sterile in health, although a strepto-diplococcus had been found by Dudgeon and Sargent in the peritoneal exudate of a perforated gastric ulcer. In no form of peritonitis was the life-saving and disease-arresting power of immediate operation so manifest. Peritonitis induced by the vasion of organisms derived

from the intestinal canal below the duodenum was much more serious, and it was not necessary to have an actual perforation of the intestinal wall in order to allow of egress from the bowel of the pathogenic organisms. This was shown by their presence in the sac of a hernia which, while strangulated, had not become gangrenous. The conditions favourable to the migration of germs through the intestinal walls include a distended bowel, a retarded blood-supply, and a culture medium of organisms of exalted virulence. Dudgeon and Sargent had shown that in most of the serious cases and in nearly all the cases which recovered the first organism to migrate from the intestine was the staphylococcus albus. It would appear that the presence of this organism stimulated phagocytosis and in some degree prepared the peritoneum against the subsequent invasion of the more virulent bacillus coli. The importance of this fact was very great. The removal by irrigation and sponging of the peritoneal exudate containing the protective phagocytes, especially from the diaphragmatic area, and the very probable substitution by the manipulations of the virulent bacillus coli from the primary focus for the less virulent staphylococcus albus would materially reduce the patient's chances of recovery. It was probable that the great reduction in mortality which had followed the substitution of dry local sponging and drainage for free irrigation and partial evisceration was due to the conservation of the defensive processes which were going on in the peritoneum at a distance from the centre of infection. Unfortunately, there was a large group of cases in which the invasion was from the first due to the virulent bacillus coli or the still worse streptococcus pyogenes. In these very fatal cases little or no reaction occurred and the patient might be killed outright in a few hours by the intensity of the poison. It was in these cases alone that evisceration and complete washing of the intestinal coils might be justifiable. In the treatment of peritonitis morphine was to be excluded because it not only masked the symptoms and so gave a false assurance of well-being but it increased intestinal paresis and, what was of even greater importance, exercised a marked inhibitory effect on leucocytosis. Repeated small doses of calomel followed by saline aperients were of great value in warding off impending peritonitis but were useless in advanced cases. The introduction of large quantities of normal saline fluid into the peritoneal sac or by subcutaneous or intravenous transfusion or by intermittent or continuous injection into the rectum was beneficial in that it favoured peritoneal exudation and increased leucocytosis. The semi-sitting posture introduced by Fowler was of undoubted value. As a general rule, in the large class of cases of diffused septic peritonitis which depended on infection from some portion of the intestinal tract the surgeon should regard the upper area of the peritoneal cavity, unless itself the seat of primary infection, as sacred and leave it severely alone. After dealing with the primary seat of invasion the question arose as to the proper attitude to the general peritoneal cavity with its diffuse infection, sticky intestinal coils, and thin turbid exudate. In the majority of cases of moderately virulent infection the cost of interference with the general cavity was too great and they should be satisfied in making things secure locally and resorting to dry sponging or strictly local and open irrigation with drainage.

Dr. H. HOWITT (Guelph, Ontario) said that opiates had undoubtedly done more than anything else to hinder the successful treatment of peritonitis and their administration could not be too strongly condemned. The important points in dealing with a case of septic peritonitis were early operation, done with gentleness yet rapidly, complete removal or adjustment of the cause, judicious drainage, the sitting posture, avoidance of food by the mouth for some days, and the giving of large quantities of normal saline solution by the bowel. Where intestinal distension had supervened it was essential to open one or more coils of bowel, and this meant partial evisceration which should be done under cover of warm moist towels. Free irrigation was necessary where there had been extensive peritoneal fouling.

Dr. MAYO wished to emphasise the increased danger of infection in the upper zone of the abdomen as compared with the pelvic portion. In the upper abdomen nature absorbed so rapidly that there was not time for properly sterilising septic material and the entrance of such substances into the circulation might set up a possibly fatal embolic pneumonia. Since placing his patients after stomach operations in the semi-sitting posture he had practically got rid of post-operative chest troubles, which formerly were of frequent occurrence.

Dr. OCHSNER said that the principles which guided the surgeon in the treatment of sepsis elsewhere in the body must be applied to the peritoneum. The products of sepsis must be provided a way of escape without spreading the infection. The lymph stream must be directed into rather than from the peritoneal sac and the intestines must be allowed physiological rest by withholding food and drink and, if necessary, resorting to gastric lavage.

Mr. MURPHY said that his contribution to the discussion would be limited to remarks on his personal experience of the operative treatment of general acute suppurative peritonitis due to perforation of duodenal, gastric, typhoid, or appendicular ulcers. The statistics which he had to offer were derived from such cases only and bore no reference whatever to such conditions as circumscribed intra-peritoneal abscesses. During the last three and half years he had operated on 36 patients with 35 recoveries. His single fatality occurred on the sixth day after operation and was due to double pneumonia. Previously to three and a half years ago his mortality was upwards of 80 per cent. and he shared the opinion still prevalent that the virulence of the bacterial poison and the resistance of the individual to bacterial toxins had much to do with the success or failure of operative treatment. He was now satisfied that the particular bacterial organism had little or nothing to do with the result, having seen a pure streptococcal infection, general in its incidence and with an 80,000 leucocytosis, respond as quickly to treatment as did cases of the colon bacillus. The enormous improvement he had achieved in his operation results were not due to "earlier operation" or to improved aseptic or antiseptic precautions, but to a more enlightened application to the peritoneum of surgical principles which had been long understood and practised in treating infections elsewhere in the body. These include (1) relief of tension to pus collections; (2) continual drainage; (3) avoiding manipulation, sponging or washing the peritoneum, or separating adhesions; (4) aiding elimination of the toxins already in the blood by administering large quantities of fluid through the rectum; (5) assisting by gravity the flow of pus to the least absorbent zone of the peritoneum—the pelvis—by placing the patient in the sitting posture; and (6) giving large doses of streptolytic serum.

STATE MEDICINE.

THURSDAY, AUGUST 23RD.

The Milk-supply and Disease.

A discussion on the question of safeguarding our milk-supplies was opened by a paper by Professor R. HARCOURT of the Royal Agricultural College of Guelph, Ontario, in which he said that there were few foods known which were more wholesome and nutritious than milk, especially milk in an unaltered state, but its chief defect was that it was so very readily liable to contamination. It was almost impossible to find it handled and stored under proper conditions. Indeed, if the public knew as much about the conditions under which cows were milked and the milk was prepared for distribution and stored by milk dealers he thought the revelations would prove to be worse than those of the packing houses of Chicago. He had found that milk drawn through the milking machine was even more contaminated and richer in bacterial colonies than hand-drawn milk. It was essential for a good milk-supply that the cows should be properly fed, properly housed and cared for, and kept away from the filth which must exist in every farmyard. In Canada milk was supplied to the consumer in cans or sealed bottles; this did not seem to be quite a fair way of supplying such an article as milk, because it gave no means of ascertaining the weight of milk supplied, which might and did vary very much for the same quantity. He could see no reason why milk of a uniform standard of fat percentage should not be regularly put upon the market. In that case it would be fairer to both consumer and vendor, as the buyer would get full value for his money and the seller would obtain a price equal to the food value of his milk. What the public wanted was a milk that would keep good for 24 hours and would be free from flavours. Preservatives in milk were in his opinion unnecessary and were in any case more or less injurious to health. There must, and should be, a strict inspection of all places connected with the production

storage, and distribution of milk, as there were many men in the trade who by their slovenly methods were a disgrace to the country.

A paper was also read by Professor JOHN GLAISTER (Glasgow) in which he referred at length to the general character of milk-borne diseases. It was now fully admitted that milk could be responsible for the spread of such diseases as tuberculosis, scarlet fever, enteric fever, diphtheria, and epidemic sore-throat. He went on to discuss the two classes of milk-borne diseases—viz., those that arise from the cow, such as tuberculosis, &c., and those which are caused by contaminated milk. The protection of the milk-supply in Great Britain had been secured by the Dairies, Cowsheds, and Milkshops Order but the carrying out of the Order was in the hands of bodies which were largely composed of farmers and others to whom the Order was obnoxious and so nothing was done to enforce it. In conclusion he laid down the desiderata required. 1. A guarantee at the hand of qualified sanitary officials after inspection of the animals, premises, and milking operations of every dairy supplying milk to a city that cleanly conditions had been secured and that clean milk was being supplied. 2. A systematic inspection of dairy-farms and their water-supplies. 3. Registration of such farms after inspection and of all places of milk distribution in cities and towns. He also asked for certain definite standards of cleanliness, of bacteriological growth, and of temperature.

Dr. H. COOPER PATTIN (Norwich) read a short paper on the subject of milk storage and was followed by Professor R. T. HEWLETT (London), the value of whose paper was destroyed by the time limit imposed upon him.

In the discussion which followed Mr. EDWARD SERGEANT (Preston) pressed for some uniform administration of the law controlling milk-supplies and said that it seemed that this was the real need in both countries; he moved a proposition which was seconded by Professor GLAISTER and supported in a few words by Professor HARCOURT, Dr. J. GROVES (Isle of Wight) and Dr. J. H. H. MANLEY (West Bromwich).

Dr. F. H. BRYCE (Ottawa) took occasion to explain that in Toronto the milk trade was so powerful and so much opposed to reform that they had been able to suspend the operation from year to year of an Act passed unanimously by the House of Parliament and to institute a sort of compromise by which any difference of opinion between the city medical officer and the rural health officer could be referred to the chief health officer of the province whose decision was final and without appeal.

The motion on being put was carried unanimously. It was as follows:—

That the Section of State Medicine strongly recommends to the Local Government Boards of England and Wales, Scotland, and Ireland, and to the provincial boards of health of Canada that the time has now arrived when the existing provisions of the law with regard to the housing of dairy cattle, to milk stores, and to milk distribution and the periodical inspection of such cattle and dairies should be more strictly enforced upon local authorities.

The Hygiene of the Home.

Dr. J. J. CASSIDY (Ontario) read a paper with this title in which he detailed the principal requirements in the erection of a sanitary dwelling house, such as the provision of adequate sunlight, the character of the foundation, and the construction of the basement. Especial stress was laid upon the proper construction of the cellar and the prevention of damp and ground emanations. Dr. Cassidy then emphasised the chief points in the efficient plumbing, the laying of waste pipes, &c. The use of clapboard walls in addition to brick walls was advocated as being a greater protection in cases both of heat and cold. The construction of floors, the use and abuse of wall papers, and the need for well-fitting windows and doors all received notice, and particular attention was paid to the kitchen and offices.

A valuable and important paper was contributed by Miss HELEN MACMURCHY, M.D. (Toronto), on

The Medical Inspection of Children attending Elementary Schools.

In her introductory remarks Dr. MacMurchy pointed out that a general opinion was growing up that the health of the children in elementary schools was far from satisfactory and that physical deterioration was rampant and required a check. Inquiries were constantly being made as to the effect upon the health of children of the school life and school *régime* and public interest was at last being aroused in this most important subject. The hours of study, the subjects taught, and the need for children going to school adequately fed and sufficiently clothed were all receiving attention. She proposed, accordingly, to inquire in her paper into some of the points mentioned and quoted Mr. Birrell's and Mr. John Burns's most recent utterances on the subject, not forgetting to remark the growing expenditure upon schools. Dr. MacMurchy then traced the rise and growth of medical inspection of schools from an early period, alluding more especially to the French statutes of 1833 and subsequent years and passing on to the work of Brussels in 1874 and later to other European countries. The Japanese deserved mention as they commenced school inspection in 1893 and had now as many as 8424 school medical officers. In Great Britain there were said to be 85 inspectors appointed, but at any rate there were at least 31 county authorities by whom the question had never been discussed. In the New World inspection obtained in the Argentine Republic and in most of the large cities of the United States of America, there being 300 inspectors in New York alone. Something had been done in this direction in Canada but up to the present no regular State appointments had been made. The position of the school inspector would depend upon the particular case and its surroundings; no doubt in many cases in England the medical officer of health would be equal to undertaking the work, as in Eastbourne or in Salford. In Canada the health officer or one of his assistants would be appointed with a State contribution to the salary paid to him. In any case such a man should not be in private practice and therefore the question of his remuneration became of much importance. The coöperation of the parents in this work of school inspection was of the greatest importance and much good would be done if at times they were permitted to be present at the examination of their children. Legal difficulties had been suggested but as far as she knew only one case had been tried, and that in Chicago where a decision was given that it was a constitutional act. A school medical officer should be, as was said of Sir Charles Hastings, "a man of an eminently friendly disposition." It should be the duty of the medical inspector to inspect first the condition of the school buildings. Ventilation, lighting, heating, and seating should all be subject to his approval and in the erection of new schools he should be called upon to advise as to site, aspect, &c. Next in importance came the instruction of candidates for teachers' certificates who required a training in the principles of preventive medicine and school hygiene; they as well as the medical inspector needed an education to fit them for their work as guardians of the children's health. From them also would be diffused a general knowledge of school and child hygiene throughout the parents and the general public and as the people became educated much better work would be done. Dr. MacMurchy also advocated popular lectures on these subjects. The inquiry into the physical and mental condition of the child was a very wide one. It commenced by a simple anthropometry, in which height, weight, and other measurements were recorded, and any retardation of development or malnutrition was noticed and if possible the cause ascertained. Next came the special inquiry as to sight, hearing, and the state of the teeth, and here was where the inspector not being in practice himself was in a position to refer the parents to their own medical man for further advice. After that the inspector should observe any signs of overpressure or fatigue and should advise as to remission from study, sleep, &c.; last, but not least, came the control and regulation of contagious and infectious diseases. Dr. MacMurchy proceeded to discuss the results which had so far been obtained from school inspection. In Canada work had been done in Nova Scotia and was commencing in Ottawa; in Montreal there were seven medical school inspectors for a population of 267,000 with a grant from the city council of $3000. In Toronto special attention had been paid to infectious diseases, notably scarlet fever and diphtheria, and there had been a very thorough anthropometric examination made of the school children. The teeth had received particular attention at the hands of Dr. Adams of Toronto who had found only about 5 per cent. with sound sets of teeth, while only 15 per cent. could be said to have fairly good teeth. The utility of school nurses was then mentioned. These nurses attended at the schools and looked after chilblains, chapped hands, and slight sores, taught personal cleanliness, and if necessary took the children to the dispensary. Concluding, Dr. MacMurchy said: "The beginnings of a health conscience are to be felt. It begins to dawn upon us that the race is

all right, it is we who do not do our part. Even in the poorest classes 85 per cent. of the children are born healthy physically. It is after birth that we—poor, untaught, and indifferent parents—spoil their chance of life and health. National efficiency rests on personal efficiency. The foundation of efficiency must be laid in early life and few officials can influence individual and national health and happiness so much as the school medical officer."

Mr. W. SCOTT (Toronto) commenced by stating that if the State enforced compulsory education the State was logically bound to provide every safeguard to the children attending school from disease and contagion; the teacher should of course be educated in hygiene but teachers could not usurp the duties of the medical inspector. He went on to discuss in detail the leading points in which the medical supervision of schools was necessary as regards both buildings and children and quoted the statistics of New York city which possessed a very complete system of medical school inspection. The common fault of head lice was mentioned and the experience of several cities was stated, including the chief places on the continent of Europe where school inspectors had been appointed. Much stress was laid upon the examination of all new pupils, as it had been found in Wiesbaden that many children commenced their school life with undetected diseases. In conclusion, Mr. Scott dealt with the various objections raised to school inspection, such as expense, interference with teaching work, parental objection to medical examination, professional jealousy, &c., all of which would gradually disappear in the full light of a complete system.

The debate was continued by Dr. T. G. NASMYTH (Fife) and Dr. J. BARR STEVENS (Renfrew), who related their personal experiences in the matter of school examination, especially with regard to the teeth of the children attending school.

Dr. GROVES briefly set out the difficulties as experienced in England and pointed out that up to the present time the medical inspection of schools was not recognised by the English law. No one, however, had at present challenged the action of any education authority which had appointed and paid a school inspector.

FRIDAY, AUGUST 24TH.

The Medical Examination of Immigrants.

The last day of the Section was opened by a paper by Dr. F. H. BRYCE. He commenced by summarising the history of emigration in Europe as a relief for the unemployed and for assisting the surplus population. With this problem was inseparably associated the immigration problem. In contrasting the populations of Canada and the United States at the beginning of the last century he traced the gradual progress of American and Canadian immigration up to the year 1891, when it was checked by the depression of trade and the need for relieving many of the immigrants to American cities, but the growth had again commenced with the return of prosperity and the influx into the United States now exceeded 1,000,000 annually. The condition of Canada since the development of the railways was very similar, as the number of immigrants had risen from 20,000 in 1897 to nearly 200,000 at the present time. Dr. Bryce went on to speak of the natural increase of population in England and of the relation of these figures to the number of English emigrants to Canada and to the increase in the number receiving Poor-law relief. In 1900 the New York legislature, aroused by the revival in emigration and the great increase in numbers, awoke to the urgent need for efficient medical inspection, especially after the appearance in their schools of a large number of cases of trachoma. In Canada there had been since 1873 an Act for restraining the admission of undesirable persons, but the number of emigrants had not brought the question into prominence. It was not until 1902 that the restrictive action taken at the American ports, coupled with the great increase in the number of Canadian immigrants, forced the Canadian Government to take action and an amending Act was passed in that year. The principles underlying all Acts of this restraining character were identical and might be stated as follows. That the control of the undesirable element produced by, and belonging to, any nation or community is a duty peculiar to that nation and community, and that it is *contra bonos mores*, or, in other words, bad international form to allow, and *a fortiori* to encourage, the emigration or migration of undesirables from one nation to another. In this section were gathered together the representatives of the three great English-speaking peoples to whom this question was of importance and surely it should not be difficult to draw up a resolution affirming this principle. The coöperation which now existed in this great problem between Canada and the United States was very interesting and he trusted that they would be able to coöperate equally with their colleagues on the other side at the ports of emigration. The case with which emigrants for Canada passed through the United States of America and *vice-versâ* had led to a joint system of inspection by which a Dominion officer was permitted to be stationed at Ellis Island, New York, an arrangement which had worked without any friction. Some trouble had for a short time been caused by the deportation clauses of the United States Act which provided for the return of persons becoming chargeable within three years of their arrival, but that had now been amicably settled and a system of reference and correspondence established. In conclusion, Dr. Bryce pointed out that by the shortening of the sea passage Liverpool was actually nearer to Toronto than the Western coast of Canada and that they had a right to enter into closer and closer relations with their colleagues there. He did not forget the great inert mass of 700,000 unemployed in England but he would remind them that Canada had 200,000 this year to digest and put to work and that they wanted men ready to set to work as they had not time to teach people how to work while the work waited. What was needed at the ports of departure was that every emigrant and every transmigrant should be provided with a certificate of health and character before any agency or steamship company could accept him. The sight of those who were inevitably turned back was a melancholy one but it could be avoided best by their not being permitted to sail at all.

Dr. WOODWARD of the United States Naval Medical Service spoke in high terms of the joint work now being done under the *entente cordiale* described by Dr. Bryce and gave several personal experiences of his work in the United States.

Dr. HUTCHINSON (Westmount, Montreal) also spoke of the necessity for strictly safeguarding the country from the admission of undesirable emigrants.

Dr. A. A. MUSSEN (Liverpool) thanked Dr. Bryce for his references to his English colleagues. He expressed a strong feeling that Dr. E. W. Hope and himself would be fully alive to the principles laid down by Dr. Bryce. It was with the transmigrants that they had most trouble. Aliens who landed at Hull and crossed to Liverpool for passage to the United States or to Canada formed the worst class with whom they had to deal.

In concluding the debate, the PRESIDENT (Dr. C. F. MONTIZAMBERT) said that he had good cause to endorse the excellent sentiments which had been so well expressed by his colleague Dr. Bryce. It had also given him great pleasure to hear Dr. Woodward on behalf of the United States and Dr. Mussen on behalf of England. He had nothing but praise for the excellent progress which coöperative inspection was making and now that the two governments had mutually agreed to accept the certificates of each other's medical inspectors and the need for maintaining Canadian inspectors in America and American inspectors in Canada had passed the *entente cordiale* was complete; he hoped for much assistance in the future from the English side in this matter.

Dr. JENNIE DRENNAN (St. Thomas, Ontario) contributed a paper on the

State Control of Health.

Her views were in many cases striking and so Utopian in character as to be impracticable. She spoke at great length of the defects of health inspectors who did not act sufficiently on their own initiative. The present practice of medicine was not sufficiently safeguarded and both quacks and patent medicines needed more legislation. In her view all medical practitioners should be State-controlled and State-paid officials.

The very important question of

Legislation for Food Preservatives

was then raised by Mr. MACGILL, assistant to the chief Analyst, Inland Revenue, Canada. In his paper he pointed out the advisability of legislation to compel all those who added preservatives to state the fact upon the label of the goods so preserved. Even so it would not be in the public interest to trust the public to discriminate between the dangerous and non-dangerous preservatives. All preservatives should be forbidden by statute except such as might

be specifically allowed in a schedule. Preservatives should then be divided into chemical and non-chemical substances or methods and in the use of chemical compounds the percentage permitted should be rigorously defined by law. The safer preservatives, such as sugar, salt, wood-smoke, and alcohol, practically protected themselves and were comparatively harmless. The Dominion Government had now formulated a series of recommendations as follows:—

1. Prohibition entirely of the use of formalin or formaldehyde and limitation of the use of salicylic acid to one grain per pint of liquid or one pound of solid food, in all cases to be declared. 2. Absolute prohibition of the use of any preservative or colouring matter in milk. (This had been shown by evidence to be entirely right as milk properly collected, cooled, and stored needed no preservative.) 3. The only preservative added to cream to be not more than 0·25 per cent. of boric acid in the form of borax or boron compound. 4. The only preservative to be added to butter or margarine to be boric acid as above not exceeding 0·5 per cent. 5. The absolute prohibition of all preservatives in preparations of food or drugs intended for the use of invalids or infants. 6. The absolute prohibition of the use of copper salts for "greening" vegetables. 7. The improvement of the legislative machinery either by the establishment of a separate board or court of reference or by the imposition by Government of a more stringent supervision over the inspection of food and drugs and the preparation of strict schedules on the subject.

In his concluding remarks Mr. MacGill called especial attention to the fact that canned goods and preserved foods were largely the food of the poorer classes who could not protect themselves and who were compelled to buy a cheaper article than the rich who could afford to purchase fresh food. The result of the immoderate use of these substances was to cause a very large amount of preventable kidney disease and the system should be checked at once.

Dr. H. E. L. JOHNSON (Washington, D.C.) read a paper on

The National Supervision and Standardisation of Food.

Dr. Johnson acted as president of the committee of the Pan-American Medical Congress in Mexico in 1896 when a number of recommendations were forwarded to the executive at Washington on the adulteration of foods. The need for uniform procedure in every State and every city throughout the United States of America was very marked. Not only were foods adulterated but the sale of patent medicines opened a wide door to fraud and adulteration. The public now, under the stimulating influence of Mr. Roosevelt, demanded proper Government supervision.

Mr. WILLIAM SPOONER (Liverpool) read a paper on the subject of

Sailors' Foods.

He deplored the fact that even in this age of science scurvy still prevailed from time to time in some ships and attributed it to the monotony of the diet of the sailors and to the excess of salt meat in many ships. He emphasised variety of food as having a salutary effect in checking scurvy, and had found that most cases of the disease with which he had met were due to lack of vegetables, which were an absolute necessity to the health of a ship's crew. Diet should be properly proportioned between the flesh-producing and the heat-producing foods. Since 1883 the attacks of scurvy had diminished by one-half, and such a rapid change was now taking place in the victualling of ships that the sailor would be better fed than his brother in the army or his friends ashore. In support of his views Mr. Spooner presented a number of diet sheets showing the increased variety of food now supplied.

The proceedings of the Section concluded with a paper by Dr. J. M. ATKINSON (Hong-Kong) on

Plague Procedure in Hong-Kong.

The paper set forth at length the measures taken for the notification of the cases, their subsequent isolation, and the methods of disinfection employed. The segregation of "contacts" and the cleansing operations carried out in the houses of the quarter affected were also described and illustrated by photographs.

GYNÆCOLOGY AND OBSTETRICS.

THURSDAY, AUGUST 23RD (*continued*).

The Appendix Vermiformis in Relation to Pelvic Inflammation.

We published last week in the proceedings of this Section the points to which Dr. T. A. HELME (Manchester) invited attention in opening this discussion. The discussion was continued by

Dr. TOD GILLIAM (Columbus, Ohio), who said that the mutual involvement of the appendix and the pelvic organs be regarded in most instances as a mere coincidence, both conditions being so common independently. The appendix could not be infected from its peritoneal surface nor yet the appendages without a break in the surface; there must be an atrium for admission of the germ. The gonococcus, which was the cause of the majority of pelvic inflammatory conditions, was not a deep sea fish and did not travel by way of the lymphatics, blood, or through the interstices of tissues; it skimmed the surface and confined itself initially to the mucous surfaces. There could be no infection from without without abrasion of the surface, which might come through adhesion of the diseased organs to that which was contiguous.

Dr. LAPTHORNE SMITH (Montreal) was of opinion that appendicitis and disease of the tubes were very frequently coincident. Whether one disease caused the other or *vice versâ* he was not quite sure. But he had many times found the appendix deeply imbedded in a pus tube or a tubal pregnancy. He knew of at least one case of pus tube in which the gonococcus was found by microscopical examination in the tissue of the appendix, while many times the colon bacillus had been found in pus tubes. He was quite sure that the same cause which brought about appendicitis—namely, constipation (which enormously increased the number of colon bacilli)—also predisposed to disease of the tubes. Did the scope of the discussion permit him, he would like to say that he believed that when a woman had suffered for a long time with pain on the right side, both the appendix and the right ovary and tube should be removed. In several cases he had had to perform a second operation for appendicitis when he had only removed the ovary and tube, and *vice versâ*. So that he was in favour of removing the appendix whenever it appeared at all diseased.

Dr. ARNOLD W. W. LEA (Manchester) said that the routine removal of the appendix as a part of pelvic operations had shown that in 25 per cent. of women marked changes, either retrogressive or inflammatory in origin, were present without producing any symptoms. A type of chronic appendicitis existed in women apart from acute attacks, in which iliac pain was the leading symptom. This was often indistinguishable from pain of ovarian origin and was aggravated by the menstrual periods. He believed that there was a small but definite number of cases where adhesions of the appendix occurred as an after-result of pelvic operations. He advocated the routine examination of the appendix in all cases of abdominal section for pelvic disease and advised its removal in the following circumstances: (1) if the appendix was at the brim or dependent in the pelvis; (2) if peri-appendical adhesions were present or a concretion was found; (3) if it was adherent to an inflammatory swelling or tumour; and (4) if it lay in close relation to the pedicle or raw surfaces left after the operation. He wished also to emphasise the value of vaginal drainage in all cases of pelvic peritonitis of appendical origin. This could be carried out in females of all ages and provided perfect drainage.

Dr. J. H. CARSTENS (Detroit, Michigan) said that as only about 1 person in 50 had appendicitis only those appendices should be removed which were adherent and diseased. The danger added to the operation was not much as a rule, but in some cases it might be great. The small amount of mucous membrane in comparison with that of the cæcum made him think that the appendix could not be of much use in digestion and that it was better "out than in."

Dr. J. A. TEMPLE (Toronto) strongly deprecated the indiscriminate removal of the appendix in pelvic operations.

Dr. F. A. L. LOCKHART (Montreal) said that all operative gynæcologists met with cases in which disease of the appendix complicated that of the appendage of the right side. In the majority of cases it would be found that the appendical disease was secondary to that of the tubes. This was especially the case where the tube had been invaded by the bacillus coli or the streptococcus. In cases where the abdomen was operated on for pelvic disease it was his custom to leave it to the patient's discretion as to whether or not the appendix should be removed. Its excision in an uncomplicated case added but very little to the danger of the operation and relieved the patient of considerable risk.

Dr. CUTHBERT LOCKYER (London) introduced into the discussion the question of the relationship of appendicitis to pregnancy. He pointed out that during pregnancy this disease was often undiagnosed, largely owing to the fact that the symptoms of appendicitis—e.g., vomiting and pain—were regarded as the molimina of gestation. As to whether pregnancy predisposed to appendicitis, he had come to

the conclusion from a review of his own cases that there was no etiological connexion between the two conditions, but remarked that pregnancy predisposed to constipation and the latter to a formation of stercoroliths. A natural question to ask was, How does pregnancy influence appendicitis? It might exert a directly unfavourable influence upon an old or recently inflamed appendix, especially after the fourth month of gestation when the uterus first rose up into the false pelvis and began to open up the layers of the broad ligament with consequent engorgement of the ovarian veins. The fundus uteri now lay in close apposition to the cæcum and the appendix lay in contact with the right appendages. In a case of his own which illustrated this point the cæcum was found adherent to the top of the uterus and the appendix adherent to the right tube. In this particular case no urgent symptoms occurred until the end of the involution period, when the cæcum and appendix had been dragged down to the small pelvis and recurrent attacks of pelvic pain led Dr. Lockyer to perform laparotomy. The right adnexa were found to be densely adherent to the appendix and the diseased tissues were removed *en masse*. It was only fair to say that in this case there were symptoms of appendicitis before gestation occurred so that it could not be said that the pregnancy set up the predisposition to the disease. Only when the appendix was inflamed would its close relationship with the gravid uterus give rise to trouble. Boije and Krönig explained the rarity of severe appendicitis during pregnancy as due to cellular hyperplasia and increased blood-supply to the pelvic organs during gestation. This increased circulation favoured absorption, exerting thereby a beneficial therapeutic effect upon the inflamed tissues. Then came the further inquiry as to how appendicitis might affect pregnancy. This depended upon the gravity of the lesion. In mild cases the pregnancy was undisturbed. In severe cases abortion or miscarriage generally ensued. The act of labour was accompanied by great danger in cases of acute appendicitis. The contraction of the uterus would stretch and tear any adhesions which bound it to the wall of an abscess and this would result in the leakage of pus into the general peritoneal cavity. During the puerperium there might sometimes be witnessed a type of puerperal fever due to appendicitis and bacterium coli had been found in the uterus, fœtus, and lochia. Such cases had been recorded by Dr. Lockyer's friend, Dr. Labhardt of Basle, and substantiated by von Winckel and Krönig. Again, from the dragging of the diseased tissues into the small pelvis a pelvic abscess might result. In a case that Dr. Lockyer had recorded elsewhere general peritonitis and death followed abortion at the seventh month, both disasters being due to appendicitis with perforation. Severe appendicitis was a very fatal lesion. In 31 cases operated upon for appendicitis in pregnancy, abortion with death of the child occurred in 18—i.e., in 58 per cent. As regards the mother, in 31 operations 14 died—45·1 per cent., and in 24 cases not operated upon six died—25 per cent. (Boije). All authors agreed that acute appendicitis occurring in pregnancy was extremely dangerous for the mother and child. Hlawecek said that the occurrence of diffuse peritonitis was favoured by labour pains which broke down adhesions. Fraenkel and Brandt thought that the danger was over-estimated. With regard to maternal prognosis it was to be remembered that in pregnancy, as without, adhesions, bands, and cords might lead to strangulation and incarceration of bowel. Mikulicz recorded a fatal case where in the fifth month 30 centimetres of bowel became gangrenous through strangulation by a cord uniting the appendix to the posterior aspect of the right broad ligament. The diagnosis might be rendered difficult by the atypical situation of the pain. It might be on the left side or only at the umbilicus. In primiparæ the onset of appendicitis was often put down to a miscarriage and in one of Dr. Lockyer's cases the diagnosis of extra-uterine gestation was entertained. In the later months palpation was difficult and the patient should be laid on the left side during the examination. During the puerperium acute constitutional disturbances occasioned by the rupture of an appendix abscess might be attributed to puerperal uterine infection and the uterus had been removed with a fatal issue in such circumstances. Again, the uterus might become secondarily infected from a diseased appendix and the foulness of the lochia resulting in consequence, together with the subinvolution, might mask the primary lesion. Parametritis and pelvic abscess on the right side might be put down to uterine infection of puerperal type. Chronic cases with a localised swelling in the right fornix either early in pregnancy or in the late puerperium often proved to be a diseased appendix adherent to the right tube and perhaps to the right ovary. The danger here was of overlooking the possibility of appendicitis altogether and of diagnosing simply a tubal or an ovarian swelling. If definite right-sided pain coming on in definite attacks during pregnancy was met with, especially in a dyspeptic and constipated subject, the possibility of appendicitis should be kept clearly in view. Primary tubal disease was so frequently bilateral that a unilateral pain (right-sided) was far more likely to point to an appendicular lesion than to a tubal lesion. As regards the treatment of appendicitis in pregnancy the latter must be ignored. The appendicular lesion should be treated as if pregnancy did not exist. Dr. Lockyer believed that in America this advice would be criticised, as there seemed to be a tendency among Americans to regard the indication for operation as more urgent in pregnancy than in the non-gravid state. Boije said it was better in operating only to regard the pregnancy to the extent of being cautious in abdominal manipulations. Dr. Lockyer raised the question as to whether every case should be operated upon as soon as it was diagnosed. Some authorities advised this course on prophylactic grounds, but Boije's statistics clearly showed that the risk of recurrrence in consequence of pregnancy had been over-estimated. For an abscess in the pouch of Douglas the pouch of Douglas must be opened and drained and leaving the uterus alone. Dr. Lockyer stated that induction of labour was never indicated but if the lesion was diagnosed during labour the latter should be completed and the appendix dealt with afterwards. If appendicitis complicated the puerperium they were face to face with a very grave condition. Where pus was present he advised the freest drainage possible, using a free opening through the pouch of Douglas if necessary. Should the uterus be secondarily infected it should be removed

Dr. HOLMES (Chatham, Ontario), asked Dr. Lockyer whether he would induce abortion in a case of appendicitis complicating pregnancy and stated that he (Dr. Holmes) had removed a diseased appendix in a woman likely to become pregnant on prophylactic grounds.

FRIDAY, AUGUST 24TH.

The proceedings opened with a discussion on

The Treatment of Eclampsia,

following Dr. D. J. Evans's paper read on the previous day.

Dr. J. A. TEMPLE (Montreal) strongly favoured bloodletting. He used morphine but objected to chloral. If the cervix could be easily dilated he proceeded to delivery but if the os was rigid and not favourable to dilatation he left it alone.

Dr. H. L. REDDY (Montreal) found that 80 per cent. of hospital cases had more or less toxæmia without albuminuria and there were 9 per cent. in which albuminuria was present. If convulsions occurred he blamed the staff for neglect of their duties, as convulsions were absolutely preventable as a general rule. In cases coming to a hospital in convulsions the best treatment was immediate delivery. Thyroid extract was of little or no value. In cases of undilated os, with long cervix, Cæsarean section was the best treatment.

Dr. KENNEDY MCILWRAITH (Toronto) laid stress on the importance of the tension of the pulse. The tension rose just before a convulsion and fell after it, rising again when another convulsion was imminent. A woman in the pre-eclamptic stage, or one who had had one or more convulsions, was never out of danger of recurrence as long as the pulse tension remained high. Where the pulse was rapid and of low tension from the commencement the prognosis was very bad indeed. He had used thyroid extract in the pre-eclamptic stage, and with the incidence of convulsions it had lowered the pulse tension and increased the flow of urine. In two or three of these cases severe hæmorrhage had followed delivery. Post-partum hæmorrhage was an almost unknown accident in ordinary circumstances. Hæmorrhage was often difficult to induce in eclamptic patients; therefore he thought that the thyroid extract predisposed to the post-partum hæmorrhage. Patients in whom the delivery was hastened in any way had apparently been more subject to the incidence of mania in the puerperium. As this treatment had been resorted to in the worst cases only it was difficult to say which had been the factor in its production. Cæsarean section was a procedure which he had never resorted to except post mortem. In the one case in which

this was done the child was saved. These observations were based on a series of 40 cases.

Exhibition of Vaginal Drainage Tube and Laminaria Tents.

Dr. LEA showed on behalf of Sir WILLIAM J. SINCLAIR: 1. A vaginal drainage tube. This tube was thimble-shaped and might be made of glass or metal. It was introduced into the pouch of Douglas from below and provided free drainage of the pelvic floor and allowed of thorough irrigation. This tube had been used for some years with great success. It was manufactured by Messrs. Arnold and Sons, Smithfield, London. 2. A series of laminaria tents made by peasants of Iona, N.B.

Dr. LOUIS S. MCMURTRY (Louisville, Kentucky) read a paper on

The Surgical and Serum Treatment of Puerperal Sepsis.

Dr. McMurtry said that statistics showed that the serum treatment had some value prophylactically or in the early stages of infection but it was practically useless when the process became well established. Moreover, it did not act as an antitoxin like antidiphtheritic serum but exerted its effect merely by stimulating the leucocytes to take up bacteria, thus increasing the opsonic power of the blood, and for this reason it did not seem to possess any practical value, especially when applied after the infection had become developed. In puerperal sepsis the best results followed the simplest treatment. Radical surgical intervention should be avoided and the elimination of the discharges should be facilitated by free drainage, irrigation of the uterus being preferable to curettage. Hysterectomy as an operative measure was impracticable. Finally, antistreptococcic serum was without value in the treatment of puerperal sepsis.

Dr. LEA stated that curettage, although a serious procedure, should not be condemned. In French maternity hospitals it was carried out freely and thoroughly, with success in skilled hands. He recommended complete removal of any débris by thorough swabbing of the uterine cavity and the use of the "écouvillon," or uterine brush, followed by packing well with gauze soaked with alcohol and repeated if necessary. Vaginal hysterectomy was only of value in cases in which a definite local lesion was present in the uterus, such as multiple pus-foci or an infected myoma. The results of serum treatment were disappointing, because many varieties of streptococci existed and a serum antitoxin for one variety was useless in others. A special serum should be prepared for each case if this were practicable. The special benefit obtained in some instances was encouraging and further researches were urgently required.

Dr. P. E. TRUESDALE (Massachusetts) said that antistreptococcic serum had been tried on a series of cases at the Boston City Hospital without any positive result. Döderlein's method of examination of the uterine contents was employed. When the resulting growth was saprophytic the curette and douche were used. There was no improvement in the mortality statistics after the use of the serum and this was very probably due to the fact that there were varieties of streptococci and no one serum would answer in all cases.

Dr. FREDERICK FENTON (Toronto) said that a distinction should be made between those cases in which there was an infection of the uterine cavity and those in which such was not the case. Infection of the endometrium led to interference with involution, the fundus either ceasing to fall or rising to a higher level above the symphysis. Where involution was proceeding satisfactorily the uterus should be left alone It should not be explored but infection should be sought for elsewhere. The curette had no place in the routine treatment of these cases.

Dr. CHARLES A. L. REED (Cincinnati) referred to three cases published by Dr. Cartilige, in which multiple abscesses were found in the parenchyma of the uterus. They were all cases of pure streptococcus infection and hysterectomy was followed by recovery. In these cases the use of the curette could not have removed the foci of infection without removing the entire muscularis and opening up a wider field for fresh infection. The fact that most cases were mixed infections and the further fact that it was extremely difficult to distinguish exact conditions or exact infections made it difficult to determine the exact course that ought to be followed. So far, the results of serum treatment failed to make it a trustworthy resource of practice.

Dr. FRANCIS H. STUART (Brooklyn, New York) regarded the cavity of the parturient uterus as an open wound. It was impossible for even the most skilful obstetrician thoroughly to curette the surface of this wound. The curette was a dangerous instrument, especially in the hands of any but those of the largest and most constant experience.

Dr. DAVID J. EVANS (Montreal) was of opinion that until the means of bacteriological diagnosis, as applied to this class of cases, was improved, so that one could be certain of the character of the infection, the serum treatment must prove uncertain. He strongly objected to the employment of the curette in post-partum intra-uterine infection, it being only productive of harm. Nature's first line of advance became broken down and the infection was increased.

Dr. J. F. W. ROSS (Toronto) endorsed Dr. McMurtry's view as to the failure of antistreptococcic serum in the treatment of puerperal sepsis. He had entirely abandoned this method of treatment.

Dr. Ross read a paper on

The Study of 70 Cases of Ectopic Gestation,

and a paper upon the same subject was read by Dr. MURDOCH CAMERON.

Dr. WALTER B. DORSETT (St. Louis) had operated on 54 cases of extra-uterine pregnancy. He deprecated colpotomy in the treatment of these cases, having twice employed the vaginal route, with the result of having to perform abdominal section to prevent death from hæmorrhage. Extra-uterine pregnancy, in his opinion, was always preceded by some type of salpingitis or else by a congenital diverticulum.

Dr. MCMURTRY contrasted the unanimity of the views expressed by Dr. Ross and Dr. Murdoch Cameron and those discussing the same with the heated disagreements formerly found in the discussions on this subject. In the papers there was an agreement in all essential points of pathology, diagnosis, and treatment. He complimented Dr. Ross upon his paper.

Dr. A. E. GILES (London) referred to the question of diagnosis and said that he agreed with Dr. Ross that in most cases diagnosis was not a difficult matter, especially if the practitioner were on the look-out for the condition. But sometimes symptoms were absent, and in other cases side issues came in to throw one off the track. Dr. Giles had recently seen a patient who came for consultation merely to know whether there was any reason why she should not become pregnant; on examination a swelling was felt in the pelvis, and this, coupled with a history of irregular menstruation, led to a diagnosis of extra-uterine pregnancy which proved correct. In another case a patient presented herself in the out-patient department looking exceedingly ill; she stated that she had been under treatment for gastric ulcer; but a history of a missed period led to a vaginal examination, when rupture of a tubal pregnancy was diagnosed, operation was undertaken at once, and within 35 minutes of being first seen the patient had a forceps on her ovarian artery. There were several pints of free blood in the abdominal cavity. A diagnostic point in the case of extra-uterine pregnancy at full time had come under his notice in one instance—viz., resonance extending over the front of the abdomen right down to the pubes; in a case of intra-uterine pregnancy there would always be dulness over the front of the abdomen. He was pleased to hear Dr. Ross advocate operation as a routine practice in cases of extra-uterine pregnancy; his own view was that a gravid tube was to be regarded as a malignant tumour and removed at once. He would freely admit that this practice might involve a few cases being operated upon unnecessarily; but, on the other hand, it would certainly lead to the saving of a number of patients from grave risk and from death. He heartily endorsed the recommendation that the non-gravid tube should be left alone; the risk of a subsequent pregnancy occurring in the other tube was not great enough to warrant its removal in every case. It was a safe general rule to remove only diseased structures.

Dr. JOHN EDGAR (Glasgow) agreed with Dr. Giles that the other tube and ovary should not be removed. Repeated tubal pregnancy was rare and subsequent uterine pregnancy was frequent. Operation was necessary in nearly every case and the abdominal route was the best to follow. Bulging hæmatocele might be opened through the pouch of Douglas. In a few cases where the tubal rupture or abortion had occurred some time previously and there were no urgent symptoms the case might be watched for a few days, but if absorption did not take place operation should be performed.

Dr. LOCKHART dwelt on the question of diagnosis. Amenorrhœa was by no means a constant symptom. He had seen a number of cases where there was uterine hæmorrhage, starting from a week to ten days after the previous regular period. He preferred the abdominal route in operating and would not interfere with the opposite tube if healthy.

Dr. SHAW WEBSTER (Toronto) advocated the vaginal route for the removal of ectopic gestation and repudiated the statement that removal of the parts concerned was unsatisfactory by this method.

Dr. ROSS, in reply, summed up the treatment as follows: "1. Do not drain when débris can be removed. 2. Do not remove or interfere with healthy organs. 3. Operate even if the patient is apparently pulseless at the wrist—each case has a chance. 4. Apply your ligatures very carefully to prevent post-operative tearing of the softened and friable structures due to the pregnant condition. 5. Only operate through the anterior abdominal opening. 6. Use repeated submammary salines and limb bandaging." He also added a word as to prognosis, for example: Note the case recorded in which he was about to remove a cystic kidney when fortunately a supposed miscarriage was made out to be an ectopic gestation before going on with nephrectomy. Intra- and extra-uterine pregnancy was very difficult to diagnose. Double ectopic gestation was only diagnosed at the time of operation, therefore always examine the other side. Early interstitial ectopic was difficult to diagnose, probably this was impossible.

PHYSIOLOGY.

THURSDAY, AUGUST 23RD.

Electrical Stimulation of Muscle and Nerve.

Professor LAPICQUE (Paris) showed in a very clear manner that du Bois Reymond's law of the electrical stimulation of muscle and nerve preparations did not hold good. The assumption that an electrical current was only active at make and at break, while it was inactive during its flow, if kept constant, was wrong. The constant current had a very appreciable effect, only slightly modified by temperature. Expressed in thousands of a second the constant current exerted its influence over the following periods: gastrocnemius of the frog = 3; gastrocnemius of the toad = 14; ventricle of the tortoise = 80; claw muscles of the crab = 300; and mantle of aplysia punctata = 800. From the physical point of view no distinction could be drawn between nerve and muscle.

Professor W. E. DIXON (Cambridge) from his studies of

Vagus Inhibition

had come to the conclusion that the heart contained a substance "pro-inhibitin," which was converted under the influence of vagus stimulation into a new chemical substance, the "inhibitin." The latter was supposed to combine with the heart muscle and thereby to bring about cardiac standstill. He drew comparisons between the action of this substance on the heart and the action of secretin on the pancreas.

Dr. S. J. MELTZER and Dr. J. AUER (New York) stated that stimulation of the central end of one vagus with moderate induction currents caused reflexly a tetanic contraction of the cervical part of the œsophagus; strong currents produced a tetanic contraction of the entire œsophagus. Stimulation of the central end of one vagus in rabbits caused a distinct reflex inhibition of the cardia; the cardia, however, contracted as a rule after the interruption of the stimulus.

Professor J. S. MACDONALD (Sheffield) had investigated from a physico chemical point of view

The Behaviour of Nerve Fibres

when subjected to neutral red and toluidin blue dissolved in Ringe's solution. He confirmed by his results the observations of Professor Macallum (Toronto) so far as the distribution of potash salts was concerned. By a long series of magnificent micro-photographs the changes produced in the axis-cylinder under the influence of the injury current were clearly brought out. The gradual separation of the inorganic constituents (potassium chloride) from the organic ones and the final "coagulation" and contraction of the colloidal elements were especially striking.

Dr. R. H. CLARKE and Sir VICTOR HORSLEY (London) demonstrated an apparatus devised with the object of attaining precise lesions in different regions of the encephalon.

Dr. F. W. MOTT (London) gave an account of

The Physiological Significance of the Convolutional Pattern in the Brain of Primates.

The nocturnal lemurs depending essentially on smell and hearing had the visual cortex relatively poorly developed, there was no distinct occipital lobe, and consequently the cerebellum was practically quite uncovered. The motor area lay in front of the anterior portion of the lateral fissure, extended forwards a little in front of the small triangular depression at the back of the posterior end of the sulcus rectus, reached mesially as far as the calloso-marginal fissure and externally down to the tip of the Sylvian fissure. The areas for the movements of the jaw, the tongue, and the face lay in front of the anterior portion of the temporal lobe; behind these were the areas for movements of the orbicularis and levator palpebrarum, and posterior to them the centres for ear movements. In every case the motor areas lay close to the corresponding sensory areas. The post-central convolution of the ape was situated in the lemur between the posterior part of the Sylvian fissure and the anterior part of the lateral sulcus and extended further on to the calloso-marginal sulcus on the mesial surface. In cebus and macacus, owing to the development of the occipital lobe subserving vision, the posterior part of the lateral sulcus was pushed downwards. The intraparietal sulcus resulted from the expansion of the motor and kinæsthetic centres lying in front of, and behind, the central fissure, the middle portion of the lateral sulcus becoming separated from the anterior portion of the lateral sulcus. The development of macular vision in the primates led to a special development of the frontal cortex, which presided over head and eye movements, and thereby to the formation of the precentral sulcus. The chief difference between the brain of the lemur and that of apes was that in the latter the archepallium subserving smell dwindled more and more. Dr. Mott suggested that in the temporal lobe in addition to auditory impressions were also received messages from the semi-circular canals, the utricle and the saccule and the opposite side of the cerebellum, and thereby this lobe became concerned with consciousness of the three dimensions of space; the annectant gyri between the temporal and occipital lobe would then subserve the function of correlating sound, space, and visual and kinæsthetic impressions. An explanation was also offered to account for the position occupied by the centres presiding over eye movements in the brains of the anthropoid apes.

Dr. H. E. ROAF and Professor C. S. SHERRINGTON (Liverpool) in their investigation into

The Mechanism of "Locked Jaw" in Tetanus

had shown that the cortical area presiding over closure of the jaw was much less extensive than was the area governing the opening of the jaw; unipolar stimulation showed that the effect with feeble currents was confined to the opposite side; that injection of about half a milligramme of tetano-toxin into the facial nerve on one side led to the extensive area for opening of the jaw having its reaction altered into a closure of the jaw. The condition of "locked jaw" began unilaterally on the same side as the nerve inoculated and the condition was for a time confined to the nervous mechanism of that side, although later it involved that of the opposite side as well. Bilateral stimulation of corresponding portions of the cortex after inoculation of the facial nerve with dry tetanus toxin and splitting of the jaw caused opening on the uninoculated side and closure on the inoculated side.

Dr. SUTHERLAND SIMPSON and Dr. P. T. HERRING (Edinburgh) had re-investigated

The Sensory Conduction in the Spinal Cord of 15 Cats

and found that the only lesion which abolished the passage of all forms of sensation was a complete transverse section. Lesions produced in the mid-dorsal region by means of the galvano-cautery showed that the integrity of the grey substance was not essential to the conduction of painful sensory impressions; that total destruction of both posterior columns, a lesion involving the whole transverse section of the cord with the exception of the antero lateral column on one side and a thin zone of grey matter adjacent to it, and a lesion extending through the two posterior columns and the whole of the grey matter except the extremity of one anterior horn, do not abolish pain.

FRIDAY, AUGUST 24TH.

Professor HUBER (United States) distinguished in the renal tubules of all animals four histologically distinct segments. By injecting the blood-vessels of kidneys with a collodium mass and then macerating thick sections he arrived at the conclusion that the straight vessels of the kidney were derived from the efferent vessels of the glomeruli.

Professor F. S. LEE (New York) attributed the fatigue in certain pathological states to an increased acidity of the tissue juices and to the excessive production of such substances as indol and methyl mercaptane.

Professor T. G. BRODIE (London) believed the chief excretion of urine to be performed by the uriniferous tubules, while the glomeruli by their swelling set up within the kidney a pressure which forced the urine onwards which had been excreted by the tubules.

Dr. NICLOUX (Paris) estimated the amount of chloroform in the body during chloroform anæsthesia by extracting the chloroform from the minced organs with alcohol, distilling the chloroform from the alcoholic extract, decomposing the chloroform with caustic alcohol, and titrating the resulting chlorine by means of silver nitrate.

Dr. MORROW (Montreal) read a very interesting paper on the Various Forms of the Negative or Physiological Venous Pulse.

Dr. ADERS PLIMMER and Dr. SCOTT (London) discussed the liberation of phosphorus from nuclein compounds. Doubt was thrown on Macallum's reaction for phosphorus. Bensley had stated this reaction to be due to the reduction of absorbed molybdic acid and as not due to the reduction of a phospho-molybdate. Dr. Plimmer and Dr. Scott stated that, if tissues containing nucleic acid be freed from lecithin by the repeated extraction with hot alcohol and ether and from inorganic constituents by subsequent extraction with water, acids would not cause the appearance of any inorganic phosphate, and that therefore the Lilienfeld-Monti-Macallum reaction was wrong in principle.

OPHTHALMOLOGY.

THURSDAY, AUGUST 23RD.

A very full meeting of this Section assembled this morning and the room was crowded.

Dr. H. KNAPP (New York) read a paper on

The Dependence of Accommodation and Motility upon the Refraction.

He found a fixed ratio between the amount of ametropia and the degree of heterophoria and detailed his method of examining patients.

Dr. A. DUANE (New York) did not agree with Dr. Knapp's conclusions and did not find this ratio.

Lacrymal Stricture.

A discussion upon this subject was then opened by Dr. OSBORNE (Hamilton). He dwelt upon the relative methods of dilatation by probing and extirpation of the lacrymal sac in the treatment of dacryocystitis.

Dr. RISLEY (Philadelphia) urged the importance of anatomical anomalies in the causation of stricture and made a plea for the conservative treatment of the affection.

Dr. THEOBALD (Baltimore) had had no experience in removal of the lacrymal sac, but in dealing with stenosis of the lacrymal duct he relied upon thorough dilatation with large probes. He then gave some details of his method of treatment.

Dr. WEEKS (New York) advocated the use of gold styles in cases unsuitable for excision of the lacrymal sac.

Mr. G. H. BURNHAM (Toronto) found a solution of permanganate of potassium (1 in 1000) a very useful lotion for irrigation of the sac.

Dr. BAKER (Cleveland) liked conservative treatment and only advised extirpation of the sac in cases absolutely impervious to fluid.

Dr. WALTER PYLE (Philadelphia) recorded a case of violent reaction following the injection of a weak solution of protargol into the sac.

Dr. CONNOR (Detroit) was in favour of Dr. Theobald's method of treatment. He approved of extirpation of the sac in cases unamenable to other forms of treatment.

Mr. A. HILL GRIFFITH (Manchester) desired to draw attention to cases of so-called dacryocystitis in infants which were really due to retention of the normal secretion by a membranous obstruction at the nasal end of the canal.

Dr. WEBSTER FOX (Philadelphia) described his method of using styles and expressed his belief that no cases were cured unless the epithelium of the nasal canal was completely re-established.

Dr. BUXTON desired to draw attention to dust and sand as a cause of dacryocystitis. He expressed a favourable opinion of a 20 per cent. solution of argyrol as an injection of the sac.

Dr. A. FREELAND FERGUS (Glasgow) had very frequently noted streptococcic infection of the sac. He thought that treatment in the first instance should be by irrigation. In all cases of recurrent dacryocystitis he considered that the sac should be removed.

Dr. COLIN CAMPBELL (Toronto) spoke of the general treatment of the disease, favouring extirpation in obstinate and purulent cases.

Dr. LUCIEN HOWE (Buffalo) read a paper on Secondary Insertion of the Recti Muscles.

Dr. EUGENE SMITH read a paper on

Extraction of the Anterior Capsule

and showed a special forceps designed by himself to effect this end. He found that in only 3 per cent. of his cases of extraction, numbering several hundred, was it necessary to do a subsequent discission.

Mr. ERNEST MADDOX (Bournemouth) brought forward a new pocket Receptacle for Ophthalmic Knives designed by him and manufactured for him by Messrs. Weiss and Son.

FRIDAY, AUGUST 24TH.

The fact that it was the last day of the session and that the weather had all through been very hot and trying probably accounted for a somewhat diminished attendance, although a goodly number put in an appearance.

Dr. STERLING RYERSON (Toronto) read a paper on

The Surgical Treatment of Trachoma.

His conclusions were that operative treatment was only suitable in certain cases and should be followed by persistent medication. He thought that expression and grattage of the granulations greatly shortened the course of the disease when thoroughly done and he considered that Darier's method combined with medication was the best treatment for the papillary form of trachoma.

Dr. DUANE read a paper upon

Tenotomy of the Inferior Oblique, with a Consideration of the Different Conditions that may Call for the Operation.

After a highly technical discourse Dr. Duane summed up, stating that the operation was called for in (1) conditions simulating spasm of the inferior oblique, such as paralysis of the superior rectus and fixation with the other eye; (2) true secondary spasm of the inferior oblique following partial paralysis of the superior rectus and fixation with the same eye and secondary deviation of the other from spasm of the inferior oblique; (3) paralysis of a superior oblique or other muscle causing secondary spasm of the inferior oblique of the same eye; and (4) primary spasm of the inferior oblique.

Dr. DUNBAR ROY (Atlanta) read a paper upon

Phlegmon of the Orbit simulating a Malignant Growth commencing in the Ethmoidal Cells.

In a very interesting paper Dr. Roy set forth the importance of the question of disturbances of vision induced by disease of the posterior accessory sinuses of the nose.

Dr. H. V. WÜRDEMANN (Milwaukee) read a paper upon

Diaphanoscopy of the Eye or Transillumination of the Ocular Coats.

He introduced a transilluminator of his own device which had the great advantage of not getting readily hot. Dr. Würdemann then detailed the method of usage and the conditions in which transillumination was of value.

A discussion followed upon

Visual Tests for Railroad, Marine, and Military Services.

That part which considered the question of the rail and marine services was opened by Dr. WILLIAMS (Boston), who read a very exhaustive account of the American regulations and methods for testing the sight of railway drivers, &c.; whilst Mr. ARNOLD LAWSON (London) introduced the question as applicable to military service. Mr. Lawson gave an outline of the requirements of military service as gathered from the regulations in force in the various countries of Europe and then went on to criticise the English methods, suggesting certain alterations and improvements. A discussion followed and proved very interesting. The

question of the Canadian regulations as regards certain points called forth a good deal of criticism from various speakers.

The business of the Section was finally concluded by a hearty vote of thanks accorded to the President (Mr. R. Marcus Gunn), which was proposed by Mr. BURNHAM and seconded by Dr. MACCALLUM.

PSYCHOLOGY.

THURSDAY, AUGUST 23RD.

Dr. T. D. CROWTHERS (Hartford) read a paper on

The Insanity of Inebriety.

He thought the term "alcoholism" misleading; in many cases the use of alcohol was a symptom, not a cause. Inebriety was the most accurate term. The periodic drinker was always the subject of a psychosis. The so-called moderate and steady drinker was the most devitalised and degenerated of all users of alcohol. The whole subject must be studied medically before any real progress could be made.

The paper was discussed by Dr. HOBBS (Guelph, Ontario), Dr. R. LANGDON-DOWN (London), Dr. ADOLPH MEYER (New York), and Dr. J. J. WILLIAMS (Ontario).

A discussion on

Dementia Præcox

was opened by Dr. C. K. CLARKE (Toronto Asylum). He referred to the varying importance attached to dementia præcox by American authors, one recent writer having only three and a quarter pages for the subject, while another had no less than 40. Ill-digested results were too frequently the outcome. The name must be regarded as tentative but it must be admitted that prognosis was likely to be the basis of future classification. Authors were too widely apart in the way of definitions. There was distinct danger in America of straining the classification to an absurd extent, in some instances to include 40 per cent. of all cases. There was a definite place for dementia præcox and the aim of true science would be to determine this by accurate and careful study. Discussing paranoid cases the view was expressed that these developed earlier than was sometimes supposed. Until they understood the pathological basis it would not be possible to speak absolutely of symptom pictures found in certain deteriorating processes and simulated in others. The toxic theory might be accepted only as a partial explanation of the development of this disease; the question was much more complex than that. Its unfavourable diagnosis was discussed at some length.

Dr. MEYER showed the urgent necessity of working for a conception of the disorders thus classed which would emphasise factors at work rather than the merely probable outcome, and he outlined the data which tended to show that it was much more urgent that they should take the concrete mental habits and instincts of any patient and a balance of cause, effect, and probable elasticity as their main data rather than largely hypothetical and not sufficiently concrete concepts of degeneracy and auto-intoxication and the like.

Dr. F. X. DERCUM (Philadelphia) insisted upon the purely functional character of the symptoms at first and the relative lateness of the oncoming dementia. He regarded the term "dementia præcox" as objectionable because it implied a quantitative mental loss. He was much impressed by the great factor of the neuropathy present which implied, not only structural defects of development in the nervous system, but also arrest of the organism as a whole, so that all of the other tissues of the body were probably structurally defective, in which case, on the approach of puberty, the strains of life accumulated. Proper adjustment to the environment was inadequate and change of function became apparent. Two elements were present—a defective nervous system and an abnormal nutrition; and whether in a given case recovery ensued depended largely upon the amount of arrested development. He spoke of the great amount of good to be accomplished in early cases by therapeutic methods: rest, full feeding, and massage.

Dr. A. ROBERTSON (Glasgow) agreed very much with Dr. Dercum in treating borderland cases. There was a remarkable difference of opinion between distinguished observers on this subject; Bianchi asked whether there was any need for this new nomenclature and doubted the possibility of diagnosing the condition in many cases. That was his (Dr. Robertson's) position. He preferred the term "adolescent insanity" which committed them to no absolute opinion. He admitted that this term was vague but was free from committing them to an opinion which conveyed a conception of hopelessness to the friends which might turn out to be absolutely wrong.

Dr. A. T. SCHOFIELD (London) said that in his experience these cases commenced by simple hysteria and if there was a bad family history passed by slow degrees into dementia which, if incurable, they termed dementia præcox. Early diagnosis was of no great value, as it seldom carried with it any curative therapeutics.

Dr. E. N. BRUSH (Baltimore) said that it appeared to him they were bothering themselves about terms rather than conditions. It mattered not whether they called these cases dementia præcox or adolescent insanity so long as they knew them, which they would never do all the time they fixed their attention upon names rather than symptoms or etiological factors. He granted that at present the condition was hopeless but possibly by more careful study of the individual and his environment they might be able to take from this large group a certain number of cases for whom they might predict recovery.

Dr. HOBBS desired to know how Dr. Meyer would harmonise the view of gradual deterioration of function with Dr. Dercum's explanation by neuropathy and nutrition disorders.

Dr. L. H. METLER (Chicago) thought that this and all similar discussions led to want of definite knowledge, because they were trying to crystallise into a nosological entity something that could not be so crystallised. As Dr. Meyer had shown, the question to be determined was the individual patient's reaction. This might be of a mere neurasthenic hysteroid type all the way up to a violent outburst. Normally, people's reactions depended upon so many factors, pre-natal, natal, and post-natal, hereditary, disciplinary, and physiological, that in a matter such as was now being discussed they could not be determined by any thumb rule. All Kraepelin did was to show that so-called defectives at a certain age or period of stress revealed their deficiencies. In thus calling attention to this defective class all honour was due to Kraepelin, but, after all, neither he nor others who discuss this question seemed to Dr. Metler to be making much progress in the constituting of dementia præcox into a nosological entity.

Dr. MEYER, in reply to criticisms, would not object to the term "adolescent insanity" if it were more definite and if many cases did not develop the disease till long after adolescence, although some never left the adolescent stage and others never reached it. The contention of Dr. Schofield that many began with hysteria showed exactly that it would be more important to consider this fact and to make sure an adequate treatment of hysteria than to argue about names. Any point of view which led to a study of the actual factors at work would be of greater practical and theoretical value than trite medical speculation.

Dr. R. R. RENTOUL (Liverpool) in a paper entitled

Proposed Sterilisation of Certain Mental Degenerates

urged that degeneracy existed in the proportion of 1 to 1000 of the population and advocated compulsory spermactomy (or salpingotomy in the female) in cases of idiots, lunatics, vagrants, prostitutes, &c., and the children of these, as the only practical means of preventing race failure.

Dr. FARRAR (Ontario) read a paper on Types of Devolutional Psychoses.

FRIDAY, AUGUST 24TH.

Dr. SCHOFIELD opened a discussion on

Mind and Medicine.

He briefly referred to the fact that the great influence of mind as a force in medicine, although it was universally practised, was not taught. The whole field was left to be exploited by quacks. He urged that the morning of the last day of the sectional section in each year should be devoted to papers and discussions on the study of the sound mind in relation to disease as distinguished from the study of insanity which so far had almost monopolised this section.

Professor MARK BALDWIN urged the importance of the study of normal psychology for medicine. The old association psychology, based on schemes of nervous mechanism, was giving place to a view which recognised the constant influence of mind and body, each upon the other. It was the duty, not merely the right, of the medical profession to keep pace with the progress of general psychology. He suggested that two great ideas of current psychology recently worked out should be embodied in medical training.

First, that of function, upon which the recent theories of suggestion, habit, and so on, were based; and secondly, that of genesis or evolution which was revolutionising psychological theory.

Dr. BRUSH said that years ago this subject had attracted his attention. He had an opportunity of watching the work of two surgeons, each well trained, each doing good work. One always inspired confidence in his patients that they would recover, the other produced a feeling of gloomy apprehension and doubt in the minds of his patients. The former surgeon attained better results. He referred to the fact that both in France and Germany this matter was receiving great attention. There they had many psychiatric clinics and well-equipped laboratories.

Dr. E. RYAN (Kingston, Ontario), Dr. CASSIDY (Ontario), Dr. BUCK (England), and Dr. HOBBS also took part in the discussion.

Dr. SCHOFIELD briefly replied, and in the absence of the author read a paper by Professor PAUL DUBOIS of Berne on Rational Psycho-Therapeutics.

Dr. RYAN read a paper on the Application of Modern Hospital Methods for the Treatment of Insane.

Dr. D. J. MOHER (Brockville, Ontario) read a paper on Occupation as a Factor in the Treatment of the Insane.

THE ANNUAL EXHIBITION.

III.—FOODS AND FOOD PRODUCTS.

The number of special foods and invalid foods on exhibit at the annual exhibition was considerable, most of them being well-known preparations. Samples were on view at the stalls in most instances and many visitors availed themselves of the opportunity of tasting them. Messrs. J. and J. Colman, Limited, with whom are incorporated Messrs. Keen, Robinson, and Co. (108, Cannon-street, London, E.C.), exhibited their patent barley which is extensively used for the preparation of barley water for infant and invalid use. The Mellin's Food Company (Boston, Massachusetts) showed specimens of its numerous food preparations, among them Mellin's food, with directions for its use in the modification of cow's milk. Messrs. Ely, Blain, and Co., Limited (Toronto), exhibited a preparation called "Norka" which is a form of oat food which is cooked and ready for eating. The oat basis is combined with a small quantity of malt for digestive purposes. The "Anchor" brand of Evaporated Cream was also exhibited. The Battle Creek Breakfast Food Company, Limited (Buffalo, New York) showed a preparation called Egg-O-See which is described as the whole of the wheat, cooked and flaked, preserved crisp in air-tight packages. The cooking process is effected as follows: "It is cooked for a period of two hours, then baked." Grape Nuts and Postum Food Coffee were on view at the stand of the Postum Cereal Company. Messrs. Allen and Hanburys (48, Wigmore-street, Cavendish-square, London, W., Niagara Falls, New York, and Toronto) showed various infant foods and some cod-liver oil preparations. Various new diabetic foods were shown by Messrs. Callard and Co. (74, Regent-street, London, W.), among them starchless bread, biscuits, and flour. The Arlington Chemical Works (Yonkers, New York) exhibited numerous special products, including soluble beef peptonoids, liquid peptonoids, peptonoids with creasote, and cascara peptonoids. These preparations contain predigested proteid materials derived from beef, milk, and wheat. Horlick's Malted Milk Company (34, Farringdon-road, London, E.C.) showed its preparation which is made from milk and soluble extracts of malted grain. It is claimed for it that it can serve as a complete food. It is also manufactured in tablet form for travellers. Messrs. Walter Baker and Co., Limited (Dorchester, Massachusetts, and Montreal) exhibited their breakfast cocoa, a finely powdered cocoa from which the excess of oil has been removed; also Baker's chocolate, an unsweetened preparation from freshly roasted cocoa beans. Other exhibits comprised vanilla chocolate, caracas sweet chocolate, and German sweet chocolate. Messrs. Cadbury Brothers, Limited (Bournville, Birmingham) exhibited some of their well-known cocoa preparations. The Natural Food Company (Niagara Falls, New York) had on view its preparations of shredded wheat and shredded wheat biscuits. Messrs. Brand and Co. (Mayfair Works, 74–84, South Lambeth-road, Vauxhall, London, and 11, Little Stanhope-street, Mayfair) showed various specialities for invalids' consumption, including meat essences, meat juice, beef-tea tabules, meat lozenges, and fever food. The latter consists of essence of beef, cream, and yelk of egg. Benger's Food, Limited (Otter Works, Manchester), showed specimens of its products. The Rainage Milk Products Company (Mack-avenue and Belt Line, Detroit, Michigan) at its stall showed lactalbumen and mother milk, the latter consisting of modified milk with pure lactalbumen and an increased quantity of pure milk sugar.

IV.—SANITARY APPLIANCES.

Apart from various antiseptic preparations there were few exhibits under this section. The Lambert Pharmacal Company (St. Louis) showed Listerine and Listerine dermatic soap. Borolyptol was exhibited by the Palisade Manufacturing Company.

V.—MINERAL WATERS, BEVERAGES, &c.

A few exhibits were shown under this section, but fewer than is usually the case. Canada Mineral Water, Limited, exhibited Russell lithia water, stated to be the only genuine natural spring lithia water so far discovered in Canada. Analysis shows the presence of lithium chloride, magnesium chloride, and potassium sulphate. It is a saline water acting as a mild aperient. The Apollinaris Company, Limited (4, Stratford-place, London), had on exhibit Apollinaris natural water and Apenta, the natural purgative water from the purgative Apenta springs of Budapest. Sparkling Apenta, recently put on the market, consists of natural Apenta water carbonated. Messrs. Hiram Walker and Sons (Walkerville, Ontario, Canada) exhibited their "Canadian Club" whisky—a rye whisky of which the age and genuineness are guaranteed by the Canadian Government.

VI.—PUBLICATIONS.

The number of publishing firms exhibiting was considerable and their exhibits were among the most interesting of the exhibition. The J. B. Lippincott Company (London, Montreal, and Philadelphia) showed a number of recent publications, including its well-known and appreciated "International Clinics"; also Posey and Spiller's "Diagnostic Relations between the Eye and Nervous System." The F. A. Davis Company (Philadelphia, Pennsylvania) exhibited some new works, including "Modern Ophthalmology," by J. M. Ball; Professor Bouchard's "Auto-Intoxication in Disease," translated by Thomas Oliver, M.A., M.D.; and Ott's "Text-book of Physiology." Messrs. J. A. Carveth and Co. (434, Yonge-street, Toronto), showed numerous medical books, for which they are agents; also microscopical apparatus and anatomical preparations. Messrs. P. Blakiston's Son and Co. (Philadelphia) showed "A Manual and Atlas of Orthopædic Surgery," by James K. Young, which we have already noticed in our columns, and also Dr. Nathan C. Morse's work on "Post-operative Treatment." The Rebman Company (1123, Broadway, New York) exhibited a large number of its excellent medical manuals and text-books. Messrs. D. Appleton and Co. (436, Fifth-avenue, New York) also showed a number of useful text-books, including Williams's "Obstetrics," Reed's "Gynæcology," and Kelly's "Operative Gynæcology." Messrs. Lea Brothers and Co. (New York and Philadelphia) in their exhibit showed "The Practice of Pediatrics," by W. Lester Carr; "The Practice of Gynæcology," by J. Wesley Bovee; and "The Practice of Obstetrics," by Reuben Peterson. The *Medical Library and Historical Journal* (1313, Bedford-avenue, Brooklyn, New York) had an interesting exhibit of photographs and copies of their journal.

VII.—MISCELLANEOUS.

The Library Bureau of Canada, Limited, had an interesting stand showing its system of card indexes and filing for medical practitioners and business men. Its cabinets were ingeniously and conveniently constructed and the system was easy of reference. Messrs. Wreyford and Co. (85, King-street, Toronto) exhibited "Aertex" cellular clothing. Messrs. Armour and Co. (Chicago) showed various laboratory products of animal tissue, including parathyroid, parotid, and thymus substance in powder. Messrs. R. M. Clark and Co. (246, Sumner-street, Boston, Massachusetts) had on exhibit "Hand-I-hold" Babe mits, which were hollow balls spun without seam from aluminium, and having sleeves of washing fabric. They were intended to prevent children from scratching, protecting the hands while allowing free movement of the arms. The Blossom Baby Clothes Company (190, King-street, Toronto) showed various forms of infant clothing which were an advance on some of the ordinary clothing.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 22, 1906.

The Statistical Increase of Lunacy.[1]

THE increase in the number of lunatics known to the English Commissioners in Lunacy from 53,000 in 1869 to nearly 122,000 in 1906 has given rise to much alarm as evidence of a very rapid racial deterioration, demanding extreme measures for its arrest. The existence of such a large number of mental failures constitutes a very serious social problem, but a careful examination of the facts should allay very much of the alarm. The need for serious public effort in the reduction of our great burden of lunacy exists, and is very real, but there is nothing in the situation to justify measures conceived in a spirit of panic; observation and experience must play their part. The causes that have led to this great advance in the recorded number of insane persons are of considerable complexity, although the most important are fairly obvious. The mere increase of population in the period named from 22,000,000 to 33,500,000 would have raised the numbers of the insane to some 80,000 supposing the same proportional rate to be preserved. The progress of science and civilisation might alike justify us in asking why there was no decrease, but that is another question; all that the figures show is that the same causes operating in the same way ought to have produced all the increase in the officially known number of lunatics, save 40,000. These 40,000 have to be accounted for, though this is not the whole story. The lunatics officially recognised, it must be premised, do not constitute the whole insane population; there are in addition some 10,000 who are only revealed statistically in the census returns, and probably a still further number who are not even disclosed by the census. There are good reasons for believing that during the past 40 years this class has furnished an appreciable proportion of the present official records. Lunacy, moreover, during the period of 37 years under consideration, has extended its bounds, so that states of mental defect and disorder that were not classed as insanity at the earlier period are now included in its ranks. This result is mainly due to the operation of the capitation grant of 4*s.* per head per week to all pauper lunatics in asylums. This grant came into operation in 1874 and immediately produced a great rise in the number of admissions of paupers to asylums and the same cause has continued to act until the present day. For it has resulted in the removal to asylums of all paupers whose mental condition could be certified as unsound, so that large numbers of aged, paralysed, and weak-minded persons who formerly were cared for in the workhouses or by their relatives have been made to swell the asylum population.

Changes of social condition have also aided to increase the number of the official insane. Mr. NOEL HUMPHREYS, the well-known statistician, has drawn attention to the fact that while the proportion of unofficial lunacy (as disclosed in the census) amounted to 34 per cent. of the total insane of some agricultural counties, it fell to 13 per cent. in counties having large urban or manufacturing populations, this discrepancy being due to the difficulty in retaining the defective-minded in home life in the non-agricultural districts. This cause has been steadily increasing with the transfer of population from the country to the towns. Feeble-minded persons of criminal habits, who formerly formed a considerable proportion of the occupants of our prisons, have also been added to the ranks of lunacy. The judicial statistics of 1871 showed that 0·26 per cent. of the persons committed for trial were found insane, while in 1891 the percentage was 0·46, and this although there had been an increasing amount of care taken to detect insanity prior to committal. Increased longevity in the asylum-treated lunatic is another important factor. In evidence of this may be quoted the analysis by Mr. HUMPHREYS of the mortality in the metropolitan imbecile asylums: the death-rate of which of 13·34 for the years 1871–75 fell successively to 8·2 in 1876–80, to 7·73 in 1881–85, and to 7·40 in 1886–88. He drew the conclusion that "if the mean death-rate of the first three years had continued and if the average number resident had been maintained by extra admissions the number of deaths would have exceeded the number actually recorded by 3712." The same observer calculated the mortality in the asylums of England and Wales at 103·1 per 1000 in 1859–68, and the late Dr. D. HACK TUKE estimated that if this rate had continued until 1891 no less than 5624 fewer inmates of lunatic asylums would have been living at that date than was actually the case. The average death-rate in the asylums has fallen to 98·78 for the decade ending 1904, and as the numbers have greatly swelled this diminished rate of mortality must go far to account for the accumulation of lunatics in asylums. The influence of increased longevity is evidenced by the great advance in the proportion of lunatics above the age of 45 years. Thus of 1000 insane persons at all ages in 1871 and 1901 the number under 25 years of age declined from 208 to 165; and from 25 to 45 years of age, from 388 to 367; from 45 to 65 years of age the number increased from 298 to 332; and upwards of 65 years of age from 108 to 136. This enormous increase in the later periods of life is due in part to the greater admission of aged persons, but is largely caused by the increased survival. The proportion of persons in the general population aged 55 years and upwards largely increased between 1841 and 1871, but since that date has practically remained stationary; so this factor cannot be credited with taking part in the increase.

The age factor, therefore, is another important element in the production of the existing lunacy. The census returns of 1881 and 1891 showed a progressive diminution in the insanity-rate in persons under 25 years, between 25 and 45 years an increase for 1881 but a decrease in 1891, whilst the increase from 45 to 65 years was 17·0 per 1000 in 1881 and 8·69 in 1891. From 65 years of age upward the increase for the same censuses was 15·09 and 7·65 respectively. The census for 1901 was unfortunately vitiated by the substitution in the returns of the term "feeble-minded" in place of "idiot," so that no comparison of the figures of this year with those of preceding reports is possible.

[1] Sixtieth Annual Report of the Commissioners in Lunacy.

The decrease recorded in the earlier censuses in the first 15 years of life and the almost stationary proportions in the most active period of existence from 25 to 45 years, are of the most important significance in regard to the question of the actual increase of insanity, whilst the great increase at the later periods of life is almost conclusive in regard to the large share which the causes previously mentioned have played in the accumulation of the insane. In a second article we propose to consider the relation of these and other causes to the question of actual increase in the frequency of the occurrence of insanity.

The Surgery of the Heart.

LESS than 100 years have elapsed since the surgeon however daring refused to interfere with the great cavities of the body. The limbs were recognised as belonging to his province, and the surface of the trunk and head was also amenable to surgical treatment, but with the interior of the abdomen, of the chest, and of the skull he dared not to deal. True it is that when injury laid open any of these cavities he ventured with what we may now call timidity to attempt to remedy so far as he could the damage which had been done, but in all he did the feeling that he was exceedingly venturesome showed itself. Gradually, however, this reluctance to deal surgically with the great cavities of the body began to pass away. Even before the teaching of LISTER changed entirely the aspect of operative surgery the abdomen had been opened with success, though little beyond ovariotomy was undertaken. When, however, the principles of antiseptic surgery were adopted universally much of the doubt and hesitation with which the surgeon had approached an abdominal section disappeared, and from that date to the present the area of abdominal surgery has steadily broadened, until now every abdominal viscus can be treated surgically and the results have continually improved as our experience has widened. Surgical skill has invaded the cavity of the skull also. Formerly cranial surgery was restricted to raising depressed portions of bone and to trephining, but at the present time the evacuation of the contents of an abscess of the brain and the removal of cerebral tumours are events exciting little more than a passing interest. The thorax has made the most strenuous resistance to the surgeon, yet even in this region of the body some results have been achieved, though mainly in connexion with the lungs and the pleurae. From which it will be seen that the heart and its investing membrane are almost singular in that they have been practically left untouched by the surgeon.

The first steps in the advance of surgery when practised in relief of symptoms in the great cavities of the abdomen, chest, or skull were taken for the remedying of injuries. The successful removal of a ruptured spleen, prolapsed through an abdominal wound, long preceded any attempt of a surgeon to remove a diseased spleen still remaining in the abdominal cavity. So it was also with the contents of the skull and so it has proved to be with the heart, in such attempts as have as yet been made in the direction of cardiac surgery. At one time it was thought that any wound of the heart must immediately prove fatal and HIPPOCRATES is usually credited with this opinion, but a more correct translation of his words is that wounds of the heart are very dangerous. GALEN thought that penetrating wounds of the left side of the heart were certainly fatal and for many centuries all surgeons agreed that wounds of the heart necessarily resulted at once in death. AMBROSE PARÉ, however, recorded a case in which a man whose heart had been pierced in a duel was able to run 200 yards after his opponent before falling dead. Many years later MULER published a case in which a patient did not die till six days after a wound of the right ventricle. We have now on record numerous cases where a wound of the heart has not led to death until the lapse of months or years, and in some of these a perfect recovery has appeared to follow. In some cases, again, foreign bodies, such as pieces of wood or bullets, have been found imbedded in the walls of the heart many years after the injury. As soon as it was recognised by surgeons that a wound of the heart, though extremely dangerous, was not necessarily immediately fatal, attempts at treatment were made in various directions. The application of cold to the chest and venesection were the main suggestions. CHASSAIGNAC considered that it was very desirable to close the skin wound as soon as possible, but others thought that recovery was more likely to ensue if the wound of the skin was left open; until, however, the usual cause of death in cases of wound of the heart was recognised all attempts at relief were empirical. Contrary to the common opinion, both within and without the profession, instantaneous death after a wound of the heart is rare. JAMAIN, in 1857, collected 121 cases of undoubted wounds of the heart and of these only 21 died immediately, which indicates that the cases of instantaneous, or almost instantaneous, death after wound of the heart are probably nervous in origin, produced by direct or reflex stimulation of the vagus nerve. More frequently death follows a few minutes or even some hours after the infliction of the injury, and this has been called "rapid death," as contrasted with the "immediate death" which we have already mentioned. Rapid death after heart wound is nearly always due to one definite cause, the filling of the pericardial sac with effused blood and the resulting compression of the heart. The poured-out blood presses on the thin-walled auricles and so prevents their filling, thus the supply of blood to the ventricles is cut off and death rapidly follows. MORGAGNI must have the credit of first pointing out that it is not the quantity of blood lost which in most cases leads to death but the accumulation of blood in the pericardium. When the truth of his words was seen it became evident that where there is a large wound of the pericardium in addition to the wound in the heart rapid death is not so likely to ensue as when the wound of the pericardium is small and valvular. A mere puncture of the heart is by no means necessarily serious, for the Chinese have employed acupuncture of the heart for centuries and in most cases no harm appears to follow. It may also be mentioned that its therapeutic value is equally small. When a puncture by a needle does cause death it is due to a tearing of the heart substance by the movements of the heart and a filling of the pericardium with blood. In several cases the end of a needle impaling the heart has been felt under the skin, an incision over it has been made, and it has been found possible to remove it, recovery following;

and this appears to have been the earliest surgical intervention in cases of injury of the heart itself. Many cases have now been recorded in which the pericardium has been incised to let out effused blood which was causing distress to the heart by pressure. In most of the cases there was a wound of the superficial tissues and of the pericardium, but MANSELL MOULLIN published a case of hæmopericardium resulting from a kick incurred at football. The pericardium was opened, the blood evacuated, and recovery ensued. The first attempt to close by suture a wound of the heart substance appears to have been made by FARINA but the patient died four days later from pneumonia. CAPPELEN'S patient also died three days after the operation in which the cardiac wound was sutured and the left coronary artery tied. REHN had the first success. A young man received a wound from a dagger on the left side of the chest. The wound was opened and much blood was found in the left pleural cavity. A small puncture of the pericardium was seen from which dark blood was oozing. The pericardium was incised, much blood gushed out, and a wound of the right ventricle, a little more than half an inch in length, was seen. This was sutured with silk and the hæmorrhage ceased after the third stitch. PARROZZANI'S case followed soon and now a large number of cases has been recorded. In THE LANCET of Sept. 15th, p. 706, we published an account of an extremely interesting case under the care of Mr. FREDERICK T. TRAVERS of Maidstone. In this case an iron spike was driven into the sternum of a boy, aged 19 years, and pieces of the bone penetrated the right ventricle, causing an extensive and irregular wound. The edges of the wound were successfully brought together by sutures and the patient survived for ten days. This is probably the most extensive wound of the heart which has been sutured and the temporary success of the operation is very encouraging; but the patient would doubtless have died before any operation could be performed if a piece of bone had not plugged the wound in the wall of the heart. This fortunate accident gave the unfortunate lad a chance of life and Mr. TRAVERS as nearly as possible enabled him to use it.

It must be acknowledged that the heart is much more tolerant than formerly was imagined. In the earlier operations the greatest care was taken to pass the sutures only during the diastole, the needle being introduced during one diastole and the suture completed in the next. This excessive care appears to be unnecessary. Theoretically, the diastole is the best time for passing the sutures but practically they must be passed when possible, not much regard being paid to the period. If necessary, the heart may even be held gently in the palmar aspect of the hand while the sutures are being passed. All such operations necessitate an ample opening of the chest wall and pericardium and it is now generally agreed that a flap should be turned up consisting of the skin and subcutaneous tissues and the cartilages of the fourth, fifth, and sixth ribs. This flap may be turned either inwards or outwards and a good view of the pericardium and heart can be obtained. PODIZ of Kharkoff has published a case in which a girl, aged 16 years, had received a bullet in the chest. No operation was done at the time but four days later there were signs that the pericardium had become infected. An extensive pericardotomy was then performed and a wound of the right ventricle was seen a centimetre in length. It did not bleed. The bullet was searched for by a needle introduced through the wound and passed into the cavity of the ventricle and even into its posterior wall but no bullet was found. Still more, the heart was palpated all over, but no resistance could be felt. The manipulations had no ultimate harmful effects for the patient recovered. It is thus evident that the heart does not resent interference to the extent formerly thought. With care sutures may be introduced and apparently no harm results. It cannot be doubted now that the correct treatment for a wound of the heart is to lay it bare and close it with sutures. So far we have advanced. Are there any further steps to be taken? In other parts of the body surgery has commenced by the treatment of accidental wounds but later has advanced to the remedying of non traumatic morbid conditions. Will it be so with the heart also? Who can tell? Many of the commonplaces of the surgery of the present day would have seemed the wildest dreams to the surgeon of 100 years ago. It is possible that the surgeon of the future may with impunity intervene in morbid states of the heart for which at present nothing can be done. It is unwise to prophesy, but time may have in store for us surprises greater than any hitherto seen.

Dairy Produce and Sanitation in Irish Rural Districts.

THE interdependence of the several parts of the British Isles renders the sanitary circumstances of any one part a matter of importance and even concern to the remainder: so that, having regard to the considerable amount of food which is introduced into England and Wales from Ireland, sanitary administration among the Irish is a subject which should appeal with special force to most of our readers whatever their geographical address. For example, the nature of the food imported into England is such as to render cleanliness one of the most important factors in Irish life, and if some of us in days bygone could have seen the conditions under which Irish firkin butter was prepared and stored we should not readily have consumed it or have allowed our patients to do so. During recent years a marked improvement in the dairy industry has taken place in some parts of Ireland, a fact which is due to the gradual growth of the creamery system and to the necessity of producing a mild (lightly salted) butter which will maintain its freshness for the necessary time. In order to effect this the Irish have in some instances sought advice from the Danes who have long since taught the world how, by means of pasteurisation and cleanliness, a saltless butter can be produced which will stand the voyage to England and hold its own with dairy produce from any other country, a result which has been brought about without the addition of any preservatives. But, although the introduction of the creamery system has stimulated cleanliness amongst the Irish, the system has in itself introduced dangers which are liable to arise when any commodity, drawn from numerous sources, is passed through a single channel. There is the risk that if one source be infected the whole supply may be contaminated, and that if at the centre of distribution there is a polluted water-supply or other source of infection a similar result may ensue, and

the consumers of the separated milk may be decimated with enteric fever. To a certain extent, however, both these risks are diminished where pasteurisation is adopted. The measure of the risks which obtain in Ireland at the present moment may be learned to some extent from the annual report of the Local Government Board of Ireland for the year ending March, 1906. There is not in the reports of the medical inspectors under the Board any general or comprehensive account of the dairies and cowsheds in Ireland, but there is much scattered information dealing indirectly with the subject of dairy produce, most of which affords indications that there is still room for very marked improvement in many particulars.

Taking, for instance, Dr. T. J. BROWNE'S report, we read of an outbreak of enteric fever in the Tralee union in which "the infection was imported into the district and was probably spread through the medium of the milk-supply from an infected house to the local creamery." In the case of another outbreak which occurred in the Charleville rural district enteric fever seems to have spread through the medium of the milk-supply to the Ballyhea Creamery and some 40 persons contracted the disease. In yet another instance the infection was, in the opinion of the medical officer of health, conveyed in milk procured from the Golden Creamery. Another of the medical inspectors, Dr. C. J. CLIBBORN, reports an outbreak of enteric fever which was due to the use of *separated* milk supplied by the Greencastle Creamery, and the evidence in this case seems very conclusive. All the cases were confined to this creamery area and no cases occurred within the area in families who did not consume the infected milk. This outbreak is of exceptional interest in that pasteurisation was professedly practised at the creamery. But it is clear that either the process must have been imperfectly carried out or that the separated milk must have become infected after the process of pasteurisation; it is, indeed, probable that the temperature of the milk was raised no higher than 140° F., in which case no real measure of security was effected. In Dr. CLIBBORN'S view the outbreak was due in the first instance to the illness of one of the attendants who resumed work at the creamery while still in an infecting state, but he adds that persons continued to send milk to the creamery while they had enteric fever in their houses. It has also to be noted that the water-supply was furnished from a well situated at the foot of an incline behind the creamery. The well was but 20 feet deep and the surrounding land is cultivated, and at times highly manured, while some 180 yards higher up the incline is a graveyard. The sanitary condition of the houses in which those who supply the milk to this creamery live appears to be deplorable, for from 80 to 85 per cent. of the houses are but one-storeyed, thatch-roofed, earth-floored dwellings, comprising one room and a kitchen. As regards the milk itself, we are told that it was stored in the room or the kitchen, both of which were used, when necessary, as sleeping apartments. The cows were housed in small byres with thatched roofs and close-fitting doors and both ventilation and cleanliness were defective. We wonder how many of them would resist the tuberculin test.

It would not be difficult to multiply instances of a somewhat similar nature from the reports of other medical inspectors, but we have quoted enough to show that in the matter of the control of cowsheds, and, indeed, of the general sanitation of the premises concerned in dairy produce, Ireland has an enormous leeway to make up. In the best interest of Ireland it is regrettable that notwithstanding some admirably conducted creameries there is still an appalling amount of filth in association with the dairy industry. Without cleanliness no country can in these days hold its own, for all the teachings of science inculcate and reiterate the doctrines of cleanliness. In the presence of putrefactive bacteria abundance of salt or other preservative is necessary and even with a nominal pasteurisation there are, as has been borne witness to by the Irish report, risks which are likely to prove disastrous. Good Irish butter is among the best butter which the world produces in the point of flavour, and if the people of Ireland would awaken to the necessity of the present day the dairy produce of Ireland would more than hold its own. But the Irish seem sometimes to be willing to abide in mediæval conceptions as to cleanliness and when the principles of ordinary cleanliness are neglected the use of preservatives becomes perilous. One of the greatest blessings which could befall the Irish people would be the absolute prohibition of all preservatives in their butter and cream. Were an edict of this nature to go forth the people would realise the fact that only by scrupulous cleanliness can butter which will keep be prepared.

Annotations.

"Ne quid nimis."

INFANTILE MORTALITY AND THE EMPLOYMENT OF MARRIED WOMEN IN FACTORIES.

AMONG the causes and conditions which control the varying rates of infantile mortality in urban populations no one who has studied the subject would omit to include the employment of married women in factory labour, and Dr. George Reid's paper on the causation of the excessive rate of infant mortality in the pottery districts of Staffordshire contributed to the recent National Conference on Infantile Mortality suggests that this branch of the subject calls for further investigation.[1] The employment of married women in factory labour prevails more generally in Lancashire than in any other county in England and it is not without interest to consider the relation between infantile mortality and the employment of married women in the various Lancashire towns dealt with in the Registrar General's returns. Unfortunately the Census returns do not afford the means for differentiating the numbers of women following definite occupations at home and the numbers of those employed in factories or elsewhere away from home. In Lancashire, however, in 1901, according to the last Census report, 16·7 per cent. of the married women were engaged in definite occupations; and the proportions of married women so engaged ranged among the 15 large Lancashire towns dealt with by the Registrar-General in his periodical returns from 5·5 and 5·8 per cent. in St. Helens and Barrow-in-Furness respectively to 30·5 per cent. in Preston, 33·8 in Burnley, and 37·9 in Blackburn. The mean annual rate of infantile mortality during 1904 and 1905 in these 15 towns ranged from 128 and 143 per 1000 births in Barrow-in-Furness and Rochdale respectively, to 170 in Salford and

[1] THE LANCET, August 18th, 1906, p. 423.

in Preston, 172 in Manchester, 175 in Liverpool, 176 in Wigan, and 201 in Burnley. It will be noticed that the proportions of employed married women and of infantile mortality were both low in Barrow-in-Furness and that two of the three towns showing the largest proportions of employed married women were also among the five towns in which the highest rate of infantile mortality prevailed. It should, however, at the same time be noted that while the proportion of employed married women was considerably higher in Blackburn than in Burnley the mean rate of infantile mortality was 32 per 1000 lower in Blackburn than in Burnley; and further, that the high rates of infantile mortality in Salford, Manchester, Liverpool, and Wigan were not accompanied by, and therefore could not be caused by, excessive proportions of employed married women. While, therefore, it is impossible to doubt the evil effect of the employment of married women in factory labour the proportion of such employment cannot be held to be the controlling factor of infantile mortality. With further reference to Dr. Reid's paper it may also be pointed out that during 1904 and 1905 the mean rate of infantile mortality was equal to 204 per 1000 in Hanley and considerably exceeded the rate that prevailed in any other of the 76 large English towns dealt with in the Registrar-General's tables. It appears, however, from the Census report that in 1901 the proportion of married and widowed women engaged in definite occupations in the borough of Hanley did not exceed 18·1 per cent. and was less than half the proportion of married women so engaged in Blackburn, in which town the mean rate of infantile mortality in 1904 and 1905 was 35 per 1000 below the rate that prevailed in Hanley. Thus, although the employment of married women in the Pottery factories is undoubtedly one of the causes of the high rate of infantile mortality, in Hanley there must be some other explanation of the figures quoted above, which show that a far lower proportion of employed married women in Hanley was accompanied by a marked excess of infantile mortality compared with that recorded in Blackburn, where the proportion of employed married women was more than twice as high.

THE NEW SPELLING.

THE list of 300 words issued by the American Simplified Spelling Board does not seem likely to win any increase of favour for an innovation the announcement of which has been received with varying degrees of disapproval and derision on this side of the Atlantic. The list to some extent illustrates by means of concrete instances what may be the principles actuating those responsible for it, but it hardly makes those principles clear and its inconsistencies are a little confusing. A large number of the words selected are English words, or words which have served as such in the mouths of many generations of Englishmen, but many others are technical terms invented or adapted for the convenient definition of subjects which only in recent years have required definition at all. Inventions and adaptations of this kind are not uncommon in medical phraseology. They are frequently inelegant in appearance and we do not pretend that they are easy to spell for the uneducated. To the educated, however, they express their meaning as long as they are spelt correctly, so long, that is to say, as they retain as far as possible spelling which recalls their origin; directly they are spelt incorrectly they become meaningless or misleading. A good instance may be found in the list referred to in "orthopædic." Correctly spelt it conveys to anyone with a rudimentary knowledge of Greek that it denotes something designed to educate or to train towards straightness. Spelt wrongly "orthopedic" it at once implies, particularly to those who know a little Latin only, that it is something affecting the feet, and as orthopædic treatment is frequently spoken of in relation to the feet an erroneous idea finds ready confirmation. We are well accustomed to the changing of the diphthong into "e" in "pedagogue," which we are now told to spell "pedagog," but we are not so familiar with the idea contained in "pædobaptist" as to be able to recognise its meaning easily in "pedobaptist," which suggests, if it suggests anything, a person who washes his feet. "Edile" also is to be "edile," so that the penny a liner who writes of a municipal official under that term will convey to his readers the idea of something intended to be eaten. The diphthong, however, is a special object of antipathy for the American reformer and we are not surprised to find that "anæmia" must become "anemia" or "hæmatin" "hematin." "Hæmorrhage" or "hemorrhage" however, escapes without any official reform of its classical characteristics, as do various other similar derivatives. In dealing with the word "œsophagus" we note that the change is to be to "esophagus" only, the onslaught upon the diphthong having apparently distracted attention from the "ph," although "phantom" is to be changed to "fantom." It is these inconsistencies which make it difficult to arrive at the principles upon which the changes have been made, and some will wonder why "lachrymal" should become "lacrimal" except with a view to conceal more effectually its origin, when "dactyle" and "synonyme," words, by the way, with which we are not acquainted, retain the "y," as "dactyl" and "synonym," with which we are familiar. "Dyke," too, becomes "dike," although "hypothenuse" is only modified to "hypotenuse," and "gypsy" loses only its first "y," which by custom it has long seen changed to "i." We learn, however, something by the proposed changes as to the pronunciation of some words in the United States, for if "gazelle" is to be spelt "gazel" we must presume that it is thought that the name of this graceful quadruped should rhyme with hazel, an idea a little disturbing to those who have "nursed a dear gazelle" and have believed that the poet knew the English language. In the change of "through" to "thru" Devonians should see a delicate compliment to their county's idiosyncrasies, although those who live in other parts of England may look upon the innovation from a different point of view. These words, however, are upon a different footing from scientific terms. If these are to be invented by men of science and then disguised by spelling reformers they will at once defeat the object with which they have been brought into being.

SECRETIN IN RELATION TO DIABETES MELLITUS.

THE treatment of diabetes with secretin and prosecretin is dealt with by Dr. F. A. Bainbridge and Dr. A. P. Beddard in the September number of the *Bio-Chemical Journal*. They found that in three cases of the severe type of diabetes the administration of secretin by the mouth had no influence whatever upon the output of sugar in the urine. And yet it was possible in one of the cases cited, after a latent period of more than a month, to abolish the glycosuria by means of dieting. Professor Benjamin Moore, Mr. Edward S. Edie, and Dr. J. H. Abram have previously published[1] a preliminary paper describing three cases of diabetes in which improvement appeared to follow the administration of an acid extract of duodenal mucous membrane by the mouth, the sugar diminishing gradually and finally disappearing from the urine. But Dr. Bainbridge and Dr. Beddard now suggest, as a result of their own experience, that this improvement was attributable to the diet and not to secretin. They can

[1] Loc. cit., vol. i., p. 23.

find no evidence that secretin when given by the mouth can abolish or influence the glycosuria of severe diabetes. As regards prosecretin, until more evidence is forthcoming they are unable to reach a conclusion as to the nature of the relationship existing between prosecretin and some cases of diabetes. In the same number of the *Bio-Chemical Journal*, Professor Moore and his collaborators reply to Dr. Bainbridge and Dr. Beddard. They have now tested the effects of duodenal extract in a large number of cases, in the majority of which the results were the same as those recorded by Dr. Bainbridge and Dr. Beddard. But in some of these negative cases an improvement in the digestion was noticed and in certain cases the patient increased in weight. In a smaller number of cases they have observed a decided drop in the output of sugar after the commencement of the administration of duodenal extract, which they believe is not to be attributed to change in diet, since the patients were kept upon a constant diet for some considerable time before the treatment was started and during its continuance. In some cases there appears to be an escape after a time from the influence of the secretin, as if the pancreas had been temporarily stimulated to greater activity and then had become fatigued. They have not been able in any case observed since the appearance of the preliminary paper to reduce the output of sugar to zero. In further evidence that the positive effect sometimes obtained with the extract does not stand in relationship to diet, Professor Moore and his colleagues give a chart showing a fall in the output of sugar in the case of a patient who had been kept in hospital upon a constant diet for several weeks before the commencement of the secretin treatment and in whom a decreased output promptly followed the administration of freshly prepared acid extract of duodenum. They consider that the positive evidence in the smaller number of cases outweighs the negative evidence in the larger number, for the reason that it is only in that class of patients in whom the duodenal secretion is at fault that benefit can be expected, and since such cases cannot be diagnosed it is only by routine employment of the treatment in a considerable number of cases that a final opinion can be arrived at as to whether cases occur which can be permanently benefited by the treatment.

TUBERCULOUS MEAT.

UNDER the auspices of the Agricultural and Industrial Society, Limited, a conference of "medical officers of health and sanitation" was held at the offices of Messrs. Tallerman, Limited, on August 27th last. The object of the meeting was "to consider, and take action upon, the measures it is proposed to adopt for providing the public with meat from assured healthy home bred cattle and sheep to be dealt with at public abattoirs throughout the Kingdom." Dr. W. Pickett Turner of Balham presided. We thoroughly sympathise with every endeavour that is made to combat the spread of tuberculosis but at the same time we deprecate any statements made at a public or any other meeting which cannot be fully substantiated or which are likely to give rise to erroneous and possibly mischievous ideas. Our comments are founded on a report of this meeting in the *Cardiff News* of August 28th, and if Dr. Turner has been correctly reported we think he may well review his theories and refer to the work which was carried out under the auspices of the first Royal Commission on Tuberculosis. He is reported to have said that he had been devoting considerable attention to the question of tuberculosis and if he were to tell his audience that he thought he had solved the problem that had puzzled the country for so many years he might stagger them; but he went further. He is said to have stated that he was perfectly certain that he had absolutely solved the question. We wish that we could support him in his contention but we certainly cannot do so. He maintained that tuberculosis was derived primarily from cattle. "The cattle got it by eating diseased grass." Dr. Turner apparently did not tell his audience the source from which he derived the last-named statement. We should much like to know if he can produce any scientific data in support of this view. He then advanced an argument which has frequently been suggested but which has never been proved to have much weight—namely, that the Jewish community suffer far less than do Christians from tuberculosis. Many of the best authorities on pulmonary tuberculosis express doubts as to the correctness of this assumption and the out-patient rooms and wards of our hospitals demonstrate the fact that many Jewish patients are afflicted with this disease. Dr. Turner maintains that this relative immunity of the Jews is due to the manner in which they slaughter their cattle—namely, by cutting the throats of the animals without first using the pole-axe. He is also reported to have made this statement: "By their method the Jews extracted practically all the blood in the carcass, and as all the disease germs were in the blood it naturally followed that the less blood there was, the less disease germs." It would be interesting to learn on what scientific basis Dr. Turner founds this statement. It is well known that the bacilli exist mainly in the tissues and are not easily found in the blood during life. Dr. Sidney Martin, one of the most prominent workers for the Royal Commission on Tuberculosis, was able to show that the meat from tuberculous cattle may be highly or only slightly infective, but in this case the infectivity does not depend on the presence of tuberculous lesions in the muscular tissue itself but on the contamination of the meat during the butchering by, or from, the tuberculous lesions present in the carcass. This contamination was chiefly derived from tuberculous lesions of the glands, lungs, and other organs. We are not aware that any allusion was made in the report of the Commission to the presence of the bacilli in the blood and if Dr. Turner has proof of the presence of the germs in sufficient number in the blood to render the carcass harmless when the blood is withdrawn he will render good service by publishing an account of his researches. In his argument he omits all reference to the effect of cooking upon the meat and as to whether heat is able to destroy the germs. If he is able by scientific proof to support his statements he may have made some advance in the prevention of tuberculosis. But he has apparently not dealt with other modes of dissemination of the disease and it would be interesting to know whether he considers that eating cattle which have been pole-axed is a more potent cause of tuberculosis than the inhalation of bacilli from dried sputum. The meeting passed a resolution to the effect that it is desirable that the realisation of home live stock and the preparation of their products should be organised and conducted at public abattoirs under the supervision of the medical officers of health and the Jewish Board of Shechita in conjunction with the retail butchers and grocers of the United Kingdom! This resolution as given above is beyond our comprehension; we have only a vague sort of idea that the mixed "board" suggested would prove unworkable.

A NEW AMERICAN MEDICAL DIRECTORY.

OUR New York Correspondent informs us that the American Medical Association has a committee actively engaged in the preparation of a medical directory. Concerning the forthcoming publication he writes as follows:—"The directories heretofore prepared have been the result of private enterprises and have not been received with much favour by the profession, though that of Messrs. Engelhard and Co. of Chicago is a decidedly useful work. The

objectionable features urged against some of these directories have been the methods of advertising not only proprietary medicines but individual physicians; but some of the information given in Churchill's admirable British Medical Directory tends rather to the glorification of the practitioner than to the useful informing of medical colleagues. That American directories have also been very full of errors, sometimes so as to be quite untrustworthy, cannot be denied, but detailed information has to be obtained over such wide stretches of territory that this is hardly to be wondered at. I am informed that the new directory will be prepared under the immediate supervision of competent medical editors and that every possible pains will be taken to have it correct in all its details. The advertising department will be free from the ethical defects of all former directories, when the frequent mistakes made in English medical journals as to the status and position of their American *confrères* will become inexcusable." Such a directory will certainly be valuable to British medical men, but we may remark that we have found the publication of Messrs. Engelhard and Co. very useful; and we have frequently to resort to it while we are publishing the proceedings of the British Medical Association in Toronto, as so many medical men from the United States took part in the debates.

BLACKWATER FEVER DUE TO ADMINISTRATION OF QUININE.

THE question whether blackwater fever can be induced by administration of quinine has been much discussed. In the *South African Medical Record* Dr. A. D. Ketchen has reported the following important case which appears to be conclusive. An Austrian, aged 28 years, was admitted into the New Somerset Hospital, Cape Town, on April 17th, 1906. He gave the following history. In March, 1903, he was first attacked with malaria when in East Africa. Under Koch's treatment (one gramme of quinine every ninth and tenth day) the symptoms disappeared in two months. In November, under the influence of fatigue and privation, the fever recurred. One morning when his temperature was rising he took quinine and after half an hour he passed very dark urine. Under diluent drinks the urine became clear in 20 hours. When the temperature had been normal for two or three days he again took quinine and the black water recurred. Afterwards he had short malarial attacks but did not take quinine. Then a severe attack, in which the temperature rose to 106·7° F., occurred. When he recovered his medical adviser told him to take quinine again, beginning with a small dose and gradually increasing. On taking about one-tenth of a half-gramme tabloid (about three-quarters of a grain) black water occurred in half an hour. Later he took one-fortieth of a tabloid with the same result. For the 14 months preceding admission he had had no more malarial attacks but he suffered from dysentery. On admission he was somewhat spare and anæmic. The spleen extended four inches below the ribs. There was slight dilatation of the heart and the first sound terminated in a soft systolic murmur. The liver was slightly enlarged. The urine did not contain albumin or blood. The temperature was normal. He was kept in bed, given iron and arsenic, and dieted for the colitis. On the 20th a blood-film showed one or two parasites of the æstivo-autumnal type. On April 23rd, at 8 A.M., by mistake he was given 10 grains of ferri et quininæ citras (containing about one and a half grains of quinine). At 10 A.M. he noticed that the urine was black and concluded that he had taken quinine. At 6 P.M. the temperature was 102°. Ignorant of the facts the house physician prescribed 10 grains of quinine, which was given at 11 P.M. At 10 P.M. the urine was clear and the temperature had fallen to 99·4°. At 2 A.M. on the 24th the temperature was 104·2°, he had a rigor lasting 20 minutes and vomited. When seen in the morning the skin was of a saffron colour and the conjunctivæ were yellow. He had been sweating profusely. The urine was black and contained albumin and casts. The temperature rapidly fell and on the 25th was normal, when the yellow colour had almost disappeared and the urine was clear and contained a trace of albumin. On the 26th six grains of quinine were given at 6 P.M. and at 10 P.M. the temperature had risen to 102°, and he was again passing black water with the same symptoms as before. Under a liberal diet, iron, and arsenic he rapidly improved. As doubt was expressed that so small a quantity of quinine as that contained in ten grains of ferri et quininæ citras could cause an attack this dose was given at 8 A.M. on May 8th. At 10 A.M. he was passing red urine and at 6 P.M. the temperature was 104·2°. The blood showed no parasites. On the 14th he left hospital much improved in general condition but without diminution in the size of the spleen.

THE TRINIDAD ASSOCIATION FOR THE PREVENTION AND TREATMENT OF TUBERCULOSIS.

WE have received a copy of the first annual report of the above association. The association was founded on Feb. 22nd, 1905, under the patronage of His Excellency Sir Henry Moore Jackson, K.C.M.G., Governor of the Colony, and Lady Jackson, with the following objects: (*a*) the establishment in Port-of-Spain of a dispensary for the gratuitous treatment of tuberculous diseases of the lung; (*b*) the dissemination of information regarding the prevention of tuberculosis; and (*c*) the establishment of a "sanatorium for consumption." The first year's work in the dispensary yielded encouraging results, 1691 patients having applied for advice. While the committee has in view the desirability of establishing a sanatorium on some breezy height not far from the city, it is not unmindful of the difficulties to be contended with on the financial side. It suggests that a considerable amount of good can meanwhile be done, and at a comparatively small outlay, by instituting a night hospital on open-air lines where a certain number of selected cases suffering from pulmonary tuberculosis in an early stage may be provided with sleeping accommodation. The idea is a good one. The educational influence of such an arrangement would be of great value in teaching the hospital class of patient the ordinary rules of hygiene. Some interesting remarks are made in the report in reference to racial susceptibility to tuberculosis. A large number of the natives live in "barracks," and great difficulty is experienced in getting these buildings properly ventilated. The habit of excluding the night air is only too common amongst all classes and races and from the experience gained in Trinidad it seems that this pernicious practice is more fraught with danger to the black members of the community than to any of the others. It is stated in this report that whilst all races are equally prone to attack when exposed to tuberculous infection the liability to death from the disease is directly proportionate to the degree of pigmentation presented by the patient. A strong able-bodied negro will often sicken and die from pulmonary tuberculosis within six months of infection; the lighter the victim of the disease is in colour the longer will he resist death, and so on up to the whites who, on the average, are found to hold out the longest. The explanation suggested for this fact is that the European, having for centuries lived under artificial conditions which, even now, are decimating the weaker members of the stock, his tissues have, by the process of natural selection, acquired a relatively greater amount of resistance to the toxins of tubercle than those of his black brother who has only recently been weaned from his more primeval

mode of life. Probably this is a correct explanation. It is known that if an infectious disease is introduced amongst a people who have not hitherto been exposed to it the disease spreads with great rapidity and with a high mortality. There is apparently a certain amount of acquired immunity amongst civilised nations against infectious disorders, amongst which tuberculosis must be included. We wish the Trinidad Association for the Prevention and Treatment of Tuberculosis every success.

ACCIDENT LITIGATION IN AMERICA.

THE worst feature of the present age is the paramount position given to wealth and the struggle to obtain it by some means, good or bad. No country offers such an example of this demoralisation as the United States. It is therefore not surprising that fraudulent attempts to obtain compensation for accidents are there practised on a colossal scale. In the *Boston Medical and Surgical Journal* of August 9th Dr. F. C. Richardson has described "widespread and constantly increasing demands for exorbitant sums as compensation for real or fancied injuries." In 1875 there were about 200 personal injury suits in Cook County. During the first six months of 1890 the number was 346 and the damages claimed amounted to $2,814,860. In the corresponding six months of 1896 the number of suits was 893 and the damages claimed amounted to $13,510,000. At present Dr. Richardson thinks that 3600 cases are pending and that the damages claimed amount to between $50,000,000 and $60,000,000. This enormous increase is out of all proportion to the increase in the number of accidents. The speculative solicitor who concocts baseless claims for indigent clients in the hope of being paid out of damages is not unknown in this country. But in this form of enterprise we must yield the palm to the United States, where there are lawyers known as "ambulance chasers" who have "runners" constantly watching the papers for cases of accident. These unscrupulous lawyers, with the help of equally unscrupulous members of the medical profession, rob companies of thousands of dollars every year. We are glad, however, that Dr. Richardson finds that the physicians who deliberately misrepresent are rare exceptions. But he thinks that once a physician takes part in litigation he too often becomes a partisan and, influenced by "the instinctive tendency of the imagination to dramatic unity and completeness," is led to the unconscious perversion of facts. Putting aside cases of downright malingering there remain cases in which the recipients of slight injuries regard companies as a legitimate source of revenue. Their avarice is excited and auto-suggestion furnishes a train of symptoms. Practitioners should be on their guard against such cases. Otherwise they may, with the best intentions, lay themselves open to the imputation of collusion. In America the aspect of accident litigation has entirely changed since the days when damages were claimed for material injuries, such as the loss of an eye, an arm, or a leg. Now they are often claimed for purely subjective nervous symptoms. The problem of differentiating "a traumatic neurosis" from what may be termed "a litigation psychosis" may be difficult. Dr. Richardson has tabulated 100 cases and finds that the prominent objective symptoms of traumatic neurosis are exaggeration of the deep reflexes, rapid pulse, tremor, vaso-motor disturbances, loss of weight, irritable heart, and motor weakness. The most constant symptom was exaggeration of the deep reflexes which occurred in 69 of his cases. In 51 cases the pulse was 90 or more; in 26 it was 100 or more. Tremor was observed in 43 cases; it was either general or localised—for example, in the head, the tongue, or the hands. It was fine and somewhat increased on movements and much intensified by emotional influences and fatigue. Occasionally it simulated the tremor of paralysis agitans or the coarse intention tremor of multiple sclerosis. Vaso-motor disturbances occurred in 43 cases and consisted of flushing and paling, dermographia, and diaphoresis, local or general. Loss of weight was reported in 41 cases and varied from 10 to 40 pounds. It was usually the result of malnutrition and a late phenomenon. Occasionally it was sudden and rapid. Irritable heart was present in 29 cases and varied from simple arrhythmia to severe tachycardia. Marked general weakness was found in 28 cases. Functional paralysis was seldom found but not infrequently the vitality of the whole muscular system was depressed and fatigue readily occurred. In 17 cases there were no objective symptoms and these were regarded as examples of "litigation psychosis," which opinion was confirmed by other symptoms and in most by the result. But Dr. Richardson admits that there may be rare exceptions to this rule and that mild forms of hysteria and neurasthenia without objective symptoms may result from injury.

THE LATE SIR BORRADAILE SAVORY.

THE Reverend Sir Borradaile Savory, the Rector of St. Bartholomew's the Great, Smithfield, whose death at the early age of 50 years occurred last week, was the only child of Sir William Savory, a distinguished President of the Royal College of Surgeons of England, and was well known in many capacities in medical circles. After serving as a curate at St. George's, Hanover-square, during which time he married his late wife, a daughter of Dr. F. W. Pavy, he was nominated to the living of St. Bartholomew's the Great, where he was brought into close and frequent connexion with the hospital at which his eminent father's life-work was done. He became a governor of the hospital, was a frequent visitor to the wards, and in diverse ways used considerable influence in behalf of the institution. 15 years ago he was appointed chaplain to the Order of St. John of Jerusalem, while he was also chaplain to the Volunteer Royal Army Medical Corps, and of recent years was appointed a Grand Chaplain of English Freemasons. All architects and archæologists owe Sir Borradaile Savory a debt for the enthusiastic and liberal manner in which he assisted at the restoration of the splendid Norman fabric, Rahere's Priory Church, St. Bartholomew's the Great.

AN EXTRAORDINARY CASE OF POISONING BY MORPHINE.

AN inquiry was recently held at Brighouse as to the death of a man who had died from an overdose of morphine. The interest of the case lies in the huge dose of the poison which was taken. The deceased was aged 43 years and had lived for some time in China where he had acquired the morphine habit. As is frequently the case in such circumstances he had accustomed himself to take very large doses, and Mr. R. T. Farrer, who gave evidence at the inquest, stated that he used to take as much as 60 grains of hydrochloride of morphine in a day. By means of a telegram and prefixing the title of "Doctor" to his name the deceased obtained two gross of pills, each pill containing a dose of two grains of hydrochloride of morphine, equivalent to a total quantity of 576 grains. He took this enormous dose within 24 hours and two hours before his death he swallowed 100 of the pills—that is to say, a single dose of 200 grains. After a short period of excitement paralysis of the respiratory centres ensued which ended fatally. We believe that this is the largest dose of morphine that has been reported and it is remarkable that the man should have lived so long after taking it. The toleration established by prolonged use of the drug is the only explanation that can be given. The coroner rightly commented on the comparative ease with which morphine can be purchased by non-medical

persons. The unusual dose of two-grain pills might perhaps have given rise to suspicion but as the telegram purported to be signed by a medical man the druggist apparently did not make further inquiries. There are several practitioners in the Medical Directory of the name which was on the telegram so that reference to that volume would not have been of much assistance. It is difficult to suggest how such occurrences can be avoided but we think that it would be well for druggists not to send large quantities of poisonous drugs in reply to a telegram unless the sender of the telegram is known to them or unless the name and address can be corroborated by means of the Medical Register or the Medical Directory. Another point of interest is the manner in which death took place. The symptoms were of a tetanic character and the usual comatose condition did not develop. This mode of death is fully recognised in fatalities from morphine poisoning but it is not of common occurrence.

INJECTIONS OF ALCOHOL IN NERVOUS AFFECTIONS.

THE medical profession is beginning to recognise the efficacy of injections of alcohol in the treatment of at least two conditions hitherto considered rebellious to therapeutic methods—viz., trigeminal neuralgia and facial spasm. In a communication made to the Neurological Society of Paris on July 5th M. Brissaud, M. Sicard, and M. Tanon gave interesting details of the application of the method to various other conditions usually accounted hopeless. The contact of one or two cubic centimetres of alcohol (70 or 80 per cent.) with the actual conducting fibres of a nerve trunk is followed by the diminution or disappearance of sensory or motor spasmodic phenomena in the distribution of the trunk. This procedure, however, is to be avoided where there is any neuritis or other inflammatory process at work, and its use in cases of sciatica has merely aggravated the symptoms. On the other hand, in the contracture of hemiplegics and paraplegics, where spontaneous clonus is a distressing complication, in certain cases of athetosis, in spasms of the muscles of the neck, and in cramps arising from profession or occupation, the writers have obtained singularly good results. It is true no one of their cases has as yet been under observation for longer than two months and therefore conclusions may be somewhat premature, but notwithstanding this reservation the significance of the facts cannot be neglected. Preliminary experimentation on animals made it clear that the injection of alcohol into the sciatic nerve was succeeded by transient paresis or paralysis in the leg and foot, accompanied by the reaction of degeneration in the muscles involved, and histological examination showed the presence of Wallerian degeneration beyond the site of the puncture. Weaker solutions (30 or 40 per cent.) did not produce any motor impairment, but again degenerated fibres were found in the nerve trunk. A commencement of the application of this method in man was made with certain cases of contracted foot in hemiplegia. At a point just below the exit of the sciatic from the pelvis two cubic centimetres of 80 per cent. alcohol, with the addition of rather less than a centigramme of stovaine for each cubic centimetre, were injected into the nerve. Immediately after the injection the patient had a sensation of heat and of heaviness in the leg and the skin of the foot was seen to be reddened and felt warm to the touch; there was a certain amount of tactile anæsthesia on the outer side of the leg, there was paresis of the toes, dorsiflexion was weak, and the tendo Achillis jerk was entirely abolished. In particular, all clonic and spasmodic movements of the foot vanished. Two months later the condition remained the same except that the paresis was less, the paræsthesiæ had begun to diminish, and the anæsthesia had disappeared. There was no indication either of trophic disturbance or of alteration in electric excitability. The writers propose to continue their researches in the domain of other nerve trunks and with further experience the technique will no doubt be improved and the dosage standardised.

THE APPOINTMENT OF A MEDICAL SUPERINTENDENT OFFICER OF HEALTH FOR BELFAST.

IT is more than hinted by our Belfast correspondent this week that the Corporation of Belfast does not intend to put the health of the inhabitants of the city first in filling up the vacant appointment of a medical superintendent officer of health. Letters have also appeared in the local press, in the *Northern Whig*, for example, which openly suggest that the corporation intends to nominate a candidate personally grateful to itself and has consequently taken pains to ensure a small and unworthy entry of candidates. The salary offered is only to be £600 per annum and when the size alone of Belfast is remembered such a slender emolument will surely prevent the best men from applying for the post. But the multifarious special difficulties which await the health officer of Belfast in the present unfortunate sanitary condition of the city absolutely demand the best man and the corporation has taken a serious responsibility upon itself by refusing to follow the usual procedure to obtain him. We cannot believe that the corporation purposely sent its advertisements to the *British Medical Journal* and ourselves too late for insertion, but the effect of the non-appearance of the advertisement is to confine competition for the post to local applicants.

Sir Henry D. Littlejohn will deliver the opening lecture of the winter session of the Medical Graduates' College and Polyclinic, 22, Chenies-street, Gower-street, W.C., on Monday, Oct. 1st, at 5.15 P.M. The subject will be, "The Practice of Forensic Medicine." All members of the medical profession are cordially invited to be present.

A TELEGRAM from the Governor of the Mauritius received at the Colonial Office on Sept. 14th states that for the week ending Sept. 13th there were 11 cases of plague reported and 7 deaths from the disease.

WE regret to announce the death on Friday last, Sept. 14th, of Mr. David Henry Goodsall, senior surgeon to the Metropolitan Hospital.

UNIVERSITY COLLEGE, BRISTOL.—The council of this College has offered the chair of Chemistry vacated by Dr. Travers to Mr. Francis Francis, D.Sc., Ph.D., F.I.C. Dr. Francis studied at University College, Liverpool (now the University) and at Erlangen, and has been assistant professor at University College, Bristol, since 1903. He has published many papers in journals of chemical societies both in England and Germany, among his most recent being one on Benzoyl Nitrate, which publishes a new method for the nitration of organic compounds.—The general prize-giving in the medical department will take place on Oct. 2nd in the Lecture Hall of the College, at 4.30 P.M. The prizes will be distributed by Professor Alexander Macalister. On the same evening, at the Royal Hotel, College Green, the Bristol Medical School annual dinner will be held. Dr. Frank J. Wethered will preside and Professor Macalister will be the guest of the evening. Tickets for the dinner, which are 5*s.* each, may be had on application to Mr. F. H. Rudge, Royal Infirmary, Bristol.

THE QUATERCENTENARY OF THE UNIVERSITY OF ABERDEEN.

THE four "Almæ Matres" of academic Scotland seem engaged in a competition as to which of them shall celebrate with most success the recurrent centenary of her birth. Youngest in point of years but most favoured in point of fortune, Edinburgh led off in 1884, commemorating her tercentenary with a pomp and circumstance and a sumptuous elaboration of detail[1] which made it all the more creditable to Glasgow on the occasion of her ninth jubilee in 1901, that she did not fall below the precedent and exemplar set by her metropolitan sister. What the oldest of the quartette, St. Andrews, may achieve in 1911, when she in turn commemorates her fifth centenary, is as yet "on the knees of the gods"; but in the meantime the third in the competition, Aberdeen, seems to have been doing "all she knows" (a large order!) to "go one better" than either Glasgow or Edinburgh, and in the programme to be worked out next week to have completed preparations not only to obviate failure but to insure a success at once brilliant and epoch-marking in academic annals. That success none of her sisters will grudge her, conscious as they are that, while each has distinctive features, all four are pledged to the same interest, the promotion of which is their common link in life and work.

"Facies non omnibus una,
Nec diversa tamen, qualem decet esse sororum;"

while their coöperation in the same service, for the advancement of the same cause, gives point to a not less appropriate citation from the same repertory:—

"Alterius sic
Altera poscit opem 'soror' et conjurat amice."

Owing her origin, like St. Andrews and Glasgow, to the Holy See, Aberdeen can claim one feature of special interest, particularly to the votaries of the healing art. Side by side with the faculties of divinity and law (canon and civil) she instituted a faculty of medicine, forming a fourth with that of arts which she wisely regarded as the due preparative for the other three. In thus recognising the medical as on a par with the theological and legal professions she was in advance of her time—no other British university till long afterwards vouchsafing to medicine its rightful place in the academic programme. For this unique distinction she has to thank Bishop Elphinstone, the great and good prelate whom Buchanan in his Scottish History delights to honour, who, moreover, was large-minded enough, while including a "mediciner" among the six chief officials of the university, to exempt the said "mediciner" from the obligation of being in holy orders which was binding on the other five. In later years Aberdeen struggled hard to respond worthily to the recognition thus accorded to the "humanest of the faculties." When in process of time, and as the outcome of Reformation policy, Bishop Elphinstone's foundation, known as King's College, was supplemented by another called "Marischal," from its parent George Keith, fifth "Comes Martialis" of Scotland, medicine was once more recognised but, in common with the other faculties, irregularly supported, till Bishop Forbes, in the early part of the seventeenth century, mediated between the rival foundations, new and old, and, favouring the latter, restored to it the chair of medicine which had been allowed to lapse. To this post he appointed Dr. Patrick Dun, to whom New Aberdeen owes the resuscitation of her grammar school, which has sent up many aspirants to the profession in which he was a master. Various and mostly unhappy were the vicissitudes of the two colleges during the turmoil, ecclesiastical and political, of that century and the next, when, early in the latter, the State brought them under something like conjoint control. Still, the friction between the two continued, to the prejudice of all the faculties, medicine in particular, though the *genius loci* continued to assert itself through every obstacle. The Gregories, father and son, even in this period as physicians both in the lecture room and in literature gave Aberdeen a European name, and in 1789 Dr. James Robertson and Dr. James McGrigor (afterwards the Sir James McGrigor of Peninsular fame) founded the Aberdeen Medical Society. The story of this modest club, which brought undergraduates together at first in each other's rooms, is one of the most touching in the annals of self-help, but in spite of the rebuke it conveyed to the professoriate, still at war over the question of "union," medicine continued to suffer clinically and in the class-room. At length the stimulus imparted to learning of all kinds in the third and fourth decades of the nineteenth century had its salutary effect on Aberdeen, till from being popularly known as an "arida nutrix" she became in very deed an "alma mater." Marischal College was the first to catch the new spirit and to thrive upon it—in nature-study and in the medical art above all—and in 1857–58, by which time the two colleges were fused into one, she had made good her claims to represent medicine and law under the new constitution, while to King's were reserved the faculties of arts and divinity. Since then further developments in the combined colleges have, decade by decade, enhanced the efficiency of both in class-room accommodation, in scientific equipment, and in extension of the curriculum. Marischal College, as representing the more progressive wing of the University, is naturally the more favoured in endowments, in subsidies, and in the resulting enlargement, and it is to open her new buildings—a magnificent achievement in academic architecture—that the King and Queen will be present on the 27th inst.—their intervention happily coinciding with the celebration of the University's quatercentenary.

The old order and the new will appropriately salute each other on this august occasion. Blessed by the reigning Pontiff, who will be represented by a special envoy, the University on its 400th birthday will receive the personal congratulations of the King and Queen, while every academic institution at home and abroad will through a chosen delegate take a congenial part in the proceedings. For ourselves, the medical interest in this "new departure" of a time-honoured and flourishing professional school has special claims, auguring as we do from its efficient past still further contributions to the healing art and its scientific groundwork. Appropriately, in the quadrangle of the new buildings the central obelisk will arrest the visitor's eye—a monument to Sir James McGrigor, above referred to, head of the medical staff in the Egyptian, the Walcheren, and the Peninsular campaigns. This imposing figure in the Aberdonian Walhalla cannot but call up to the mind other celebrities to keep him company—the two Gregories, of whom the younger wrote that "Conspectus Medicinæ" which for well-nigh half a century contested with the kindred work of the English Heberden the palm of lucid exposition conveyed in Celsian Latinity. Arthur Johnston, physician to King Charles I., the poet-laureate of Padua's great anatomist Casserio, of whom he was an apt pupil, will also loom large in the retrospect if only for the beautiful version of the Psalms in which his one rival in European estimation was George Buchanan. Recently edited for the Spalding Society by that refined scholar and man of letters, Principal Sir William Geddes, the two volumes of his Latin poems have given his name a new lease of life in the circles of the "homines venustiores." Francis Adams, the translator of Hippocrates and the editor and translator of Aretæus, another exemplar of the scholarly physician, falls naturally into line with the worthies already named, while the admirable consultant and teacher Kilgour will at once suggest himself as their meet associate if not "primus inter pares." The record of the Aberdonian school has of late years proved worthy of its past and places it in honourable rivalry for medical education and research not only with the sister schools in the British Isles but with those on the continent of Europe and throughout the English-speaking world in the new hemisphere and the colonies. As we have said, their intervention next week at the quatercentenary of their most northerly sister will render that celebration memorable in academic annals, adding lustre to its proceedings and marking another advance in the organisation of science as applied to the ever-extending needs of humanity. A certain "poetic justice" or dramatic fitness, indeed, irresistibly impresses itself on the outsider as the distinctive note of the occasion. The conflict of centuries between two rival colleges, owing their origin to adverse, if not actually destructive, ideals has happily been closed by the alliance and sympathetic coöperation of the two. The whole academic world has been invited to assist at the union so auspiciously brought about and the great concourse cannot break up into its constituents, each to

[1] Vide THE LANCET, April 19th, 1884, p. 715.

return to its special seat and work, without being duly impressed with the moral that the best antidote to the disruptive influences of jealousy and the party feeling which it inspires is the search for truth conducted on the rigid scientific lines on which alone it can achieve its conquests and attain its ends.

MEDICINE AND THE LAW.

Kissing the Book.

THE newspapers have been able to allot during the past few weeks a considerable amount of space to the discussion of the dirty and insanitary custom of kissing the book in connexion with the administration of oaths to witnesses and to others in England, and members of the public must at any rate be fairly fully informed of their right to be sworn in the Scotch form. As, however, the exercise of this right calls a certain amount of attention to the witness, and as many are unwilling to make themselves conspicuous and to "give trouble" where others comply with the usual practice, it seems desirable that some new form, either that used in Scotland or one regarded as an improvement upon it, should be made universal and compulsory. Our interest in the matter is on behalf of those who are compelled by circumstances, as medical witnesses are, to take the oath in police courts and before similar tribunals, where thousands of witnesses of all classes are sworn on the same Testament until it is worn out. Presumably one form of assent could be prescribed or a practically similar form could be used for all kinds of oaths should Parliament make any change in the existing custom. In considering the desirability of any change we must not ignore the possibility of cleansing the books by providing washable covers and by washing them, and we note that this is done apparently almost universally in Middlesex and in some other places besides; washing, however, may be neglected or may not be carried out upon some occasion when it is most needed. The strongest argument in favour of retaining the old form lies in the binding quality which it appears to possess where witnesses of a certain class are concerned. It will readily be conceded that a high-minded and honourable man or woman, whether influenced by religious belief or not, would tell the truth in the witness-box with or without an oath, and with or without knowledge of the legal penalties attending false testimony. It is equally clear that an irreligious and unprincipled person desirous of giving false evidence would be deterred in many cases from perjury by the knowledge that detection would, or might, follow, and that a conviction for this serious offence might mean a heavy sentence of imprisonment. It is not so easy to understand, but none the less it is a fact according to the opinions of those well qualified to judge, that there are also many witnesses, unscrupulous and not restrained from perjury by any sense of honour or by any religious influence, who are ready to run the risk, possibly a small one, of being prosecuted for perjury, but who, having laid their lips to a book-cover containing the four Gospels, will feel themselves compelled to tell the truth or, what is almost the same thing, will shrink from telling lies. This we cannot allow to be the influence of religious feeling; it is a form of superstition, of which we take advantage on the chance that we may keep out a little of the perjury which undoubtedly is to be found in courts of the class indicated above. So entirely superstitious, moreover, is the witness for whose sake the kissing of the book is retained that if he can undetected kiss his thumb instead of the binding of the Testament the "sacred" obligation to tell the truth is at once weakened in his opinion. He seems to regard the subterfuge as one which will enable him to evade the wrath of the Almighty, although he recognises its insufficiency from a legal point of view, for we never heard of a witness prosecuted for perjury urging in his own defence that he only kissed his thumb. According to the English method of administering an oath an official, sometimes quite a minor official, of the court recites, not always very reverently, the pledge by which the witness or juryman, or whoever he may be, is to bind himself; the person bound says nothing, but signifies his assent by kissing the Gospels or in the case of Jews the Old Testament, which he holds in his ungloved right hand. Before the kissing practice came in about 100 years ago the person taking the oath laid his hand upon the book, but whether he verbally expressed assent or repeated the words of the oath we are not aware. It may be pointed out, however, that although kissing as an expression of reverence towards a sacred object exists in the Roman Catholic and Greek Churches it forms no part of any ceremonial in Protestant religious worship, and that by itself it seems an inadequate method of expressing comprehension of, and acquiescence to, the pledge which the oath imposes. The Scotch "form and manner" are very different. The judge stands up and himself administers the oath, which the witness repeats sentence by sentence: "I swear by Almighty God as I shall answer to God at the last day of judgment I will tell the truth, the whole truth, and nothing but the truth." This, we should have thought, would with greater certainty awe the unscrupulous and would impress all witnesses more than the English form, but against it it is urged that it takes longer and, speaking generally, is less easily administered. Objections of this kind seem out of place where the desire is to obtain truthful testimony from those who would otherwise commit perjury, although we grant that the Scotch form may seem unduly solemn as a prelude to the merely formal evidence of some of the witnesses who are called at many trials. A middle course would seem to be for an official to repeat an oath in the form of a question and to make the person sworn lay his hand upon a Testament and assent to the question verbally. By a question we mean that the oath should begin in some such way as, "Do you swear that——," admitting of the answer to be made in distinct tones, "I swear." The Oaths Act, 1888, which enables anyone to take the oath in the form and manner in which the oath is administered in Scotland, allows anyone who states that an oath is contrary to his religious belief or that he has no religious belief to affirm, commencing as follows: "I, A. B., do solemnly, sincerely, and truly affirm and declare." It seems unlikely that the kissing of the book in silence should have a more binding effect upon the would-be perjurer than the repetition either of the Scotch form of oath, or of this affirmation, or of a solemn assent heard by all present and accompanied by manual contact with the book. That the kissing of the book should be abolished in favour of a form of oath which would have the effect of diminishing perjury would be a consummation devoutly to be wished. The witness would leave the box with his lips cleaner, literally and metaphorically, than he does now.

INTERNATIONAL CONGRESS ON HOUSING.

THE Second International Congress on Housing was held in Geneva from Sept. 4th to 8th and was attended by nearly 500 persons, about one-half of whom came from countries outside Switzerland. Great Britain was represented by only about half a dozen delegates, this small number being due probably to the fact that the organising committee did not appear to have appointed any British secretary or agent who could have brought the objects of the Congress under the notice of those who are particularly interested in the housing question. The first Congress was held in Paris in 1904 and was carried out by the Société Française d'Hygiène. An invitation has been accepted to hold the next Congress in Dresden in 1909.

The Congress was opened by M. RUCHET, Federal Councillor of Geneva, who said that Switzerland was proud to receive courageous men determined to struggle against the pestilential influence of unhealthy houses. The French Society of Hygiene had taken the initiative towards starting an international movement in favour of sanitary reform and the Congress held in Paris in 1904 had already had excellent results. Hygiene has made its laws effective in schools, hospitals, and industrial institutions; but when private dwellings are inspected terrible discoveries are made and there are found breeding places for microbes, death-dealing effluvia from decaying animal and vegetable refuse, unfortunate people infected with tuberculosis, and overcrowded masses of humanity.

M. FAZY, Councillor of State, in emphasising the importance of the Congress, said: "It is your duty to prepare for us the programme of the work which has to be carried out.

The State has an important mission to perform in this province but it requires the aid of public opinion in the task of transforming our old towns, for it must also transform habits and manners."

At a brilliant reception which was held on the evening of Sept. 4th at the Palais Eynard M. P. FAGES, administrative councillor and honorary president of the Congress, said: "The task before us is arduous. It is necessary to enlighten the masses, to combat prejudice and habits of routine, to demonstrate that in this matter more than in any other the individual interest of the richest as well as of the poorest is intimately, even indissolubly, bound up with the general interest. It is, moreover, necessary to stir up the inertia of public authorities, unfortunately absorbed by too much attention to cares of a less important nature to modify the privileges of ownership by legislative measures more in harmony with modern necessities created by the progress of science. The municipal authorities of Geneva have no legislative prerogative; they cannot exercise any sanitary control or take preventive measures. They are not, however, ignorant of the improvements necessary in old cities and the obligations which ought to be imposed on new ones. If Geneva, like all towns traversed by a river or situated on the bank of a lake, is exceptionally healthy it must not slumber in false security. Its sanitary legislation, compelled to stop at the door of each house, is still rudimentary and imperfect. It is necessary for Geneva to complete and to coördinate, in agreement with private initiative, measures concerning the feeding and physical protection of infants; to generalise the means of disinfection and to enforce their use; to create a sanitary record office containing the detailed descriptive plan of each house, particulars of deaths due to infectious diseases, the alterations ordered by the sanitary committee, and the results of these orders. It is only careful records of this nature which will insure a really efficacious intervention of the authority in the transformation of unhealthy dwellings and the construction of new ones."

A great deal of care and thought was shown in the arrangement of the different sections under which the subject was discussed. There were five main sections dealing with (*a*) dwelling houses; (*b*) lodgings and places of assembly; (*c*) moveable or temporary dwellings; (*d*) art and decoration of houses; and (*e*) sanitary administration. Dwelling houses were discussed separately as houses in towns, workmen's houses, and rural dwellings. Schools, theatres, factories, hospitals, and military establishments came under the heading of places of assembly, and railway carriages and steamboats under that of moveable or temporary dwellings. No attempt was made by the organising committee to get together any kind of public exhibition of models, apparatus, or plans, though facilities were given for the inspection of some of the public buildings and municipal undertakings in Geneva. Of particular interest to the medical members of the Congress were the latest erected school buildings, one feature of which is the bathing room in the basement, where 20 children can be bathed at once, each in a separate bath. Every scholar is expected to have a bath twice weekly. The cantonal general hospital of 450 beds, though an old building, is in many respects a well-equipped institution, and the adjoining maternity hospital, which is approaching completion, is constructed quite upon modern lines. Mention should also be made of the children's hospital at Pinchát, which was founded in 1899 by Dr. E. M. Martin, a Genevese practitioner of long standing. The situation of the hospital on an elevated spot permits the combination of fresh air and sunshine treatment with that of mechanical appliances. There is accommodation for 25 children in two large wards for nine or ten patients, two double-bed and two single-bed wards. The surgical dressing-room and operating-room are both designed to accord with the aseptic views of the present day. There have already been under treatment in the hospital 275 patients, with seven deaths. Of tuberculous cases requiring surgical treatment, there have been 125 instances, of which number 50 were suffering from hip-joint disease. The whole of the expenses of this hospital are defrayed by Dr. Martin, except that when the parents of the children can afford to do so they pay one franc daily. The daily cost per patient is said to be two francs.

The discussions at the sectional and general meetings were for the most part well sustained. Where the circumstances of different localities are so varied there must necessarily be wide difference of opinion upon matters of detail, but there was general accord upon points of principle. The methods of inspection by women health visitors met with general approval and the opinion was freely expressed that other countries might with advantage follow the example of Great Britain with regard to the administration of the laws relating to the housing of the poorer classes.

Some of the recommendations adopted were as follows: 1. That a general and sustained effort for the improvement of habitations at the present time should be directed to the provision of houses for families of small means, if possible with gardens, in rural districts. 2. That notification should be compulsory in case of infectious diseases in men and animals and that centres of infection should be compulsorily destroyed. 3. That the water necessary for hygienic purposes and health should be furnished in abundance by public bodies. 4. That public bodies should organise themselves for the struggle against the exodus from rural districts and should facilitate a return to country life by the construction of hygienic rural houses at a cheap rent. 5. That the principles of rural hygiene should be popularised and that the sanitary education of the country people should be commenced in the schools by the teachers and be followed up by (*a*) a thorough administration of the sanitary regulations; (*b*) posters, newspaper articles, and local publications; (*c*) meetings of the people in each district; (*d*) agricultural engineers; (*e*) medical men and veterinary surgeons; and (*f*) midwives. 6. That the duty should be imposed by law upon local authorities of protecting the public health by preventing all building under insanitary conditions and by forbidding the occupation of all unhealthy houses. 7. That the examination of plans for new buildings and the permanent sanitary control of houses should be intrusted to a commission which should be competent as much from the medical point of view as from the scientific aspects of building. 8. That services for disinfection should be established in each commune or in a group of communes. 9. That it is necessary to apply to the quarters occupied by animals the principles of hygiene which apply to dwellings for human beings.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 20th, 1828.

MR. SHELDRAKE ON DISTORTIONS OF THE FEET.

LORD BYRON'S CASE.

To the Editor of THE LANCET.

SIR,—It is well known that the late Lord Byron was lame in one of his feet, a circumstance which caused him much uneasiness in the course of his life; as the facts of the case have escaped the notice of all his biographers, this account of them may not be without some general interest, as well as be useful in a professional point of view.

He was born with one of his feet distorted, like some of those which are represented at page 144 of THE LANCET. As he was born in Scotland, Lady Byron consulted the most eminent professional men who, at that time, practised in Edinburgh; as no successful method of treating these defects was then known in that country, her Ladyship was told that her son's foot was incurable, and she submitted to what she was told must be his fate.

Some years afterwards, the success of my treatment of these cases becoming known in Scotland, several patients came to me from that country, and returned home cured; these facts being known to Lady Byron, she determined to send her son to be under my care in London, as he was then old enough to be sent to school. She sent him to a private academy kept by a Mr. Glenny, at Dulwich, who was ordered to send for me to attend Lord Byron and to cure his foot. A few days afterwards, a gentleman called at my house to ask at what school Lord Byron was placed. I had, then, no knowledge of Lord Byron or his residence. The gentleman told me the state of his foot; that he was sent by his mother to a school near London, with orders to the master to employ me to attend him till his foot was quite well: that, as he was coming to London, Lady Byron requested that he would call at the school, and see how her son was going on under my care. He had just arrived in London, and had lost

his pocket book, which contained the direction, with other papers; and as he knew his Lordship was to be my patient, he came to me for the address, that he might go to him directly; all this was unknown to me; there was, evidently, some mistake, which neither of us could explain, and, therefore, we parted.

A few days afterwards, I received a letter from Glenny, the schoolmaster, who reproved me, in very strong terms, for neglecting Lord Byron, and required me to attend to him *properly*. I now saw what the mistake was; that Glenny had first sent a verbal order to me, which, by mistake, had passed into the hands of the person whom Dr. Neale told Captain Darley was the wrong Sheldrake, alias Sheldrake the truss-maker. Finding that his order was not obeyed, Glenny, I suppose, wrote by the post, and directed his letter to the address which he had received from Scotland, and, of course, his letter came safe to me. As this was, evidently, the real state of the case, I wrote to Glenny in explanation; but never received an answer to my letter.

Many years afterwards, when Lord Byron was at Cambridge, a gentleman told him of the distinction that was to be made between me and *Sheldrake the truss-maker*. In consequence, he came to London to consult me. He told me all that passed in Scotland, in the attempts that had there been made to cure his foot; of his surprise, when *Sheldrake the truss-maker*, was introduced to him, to find that the person of whom he had heard so much, was so stupid and ignorant as the individual who was then introduced to him certainly was; that he made no attempt to cure his foot; made something that he called a leg iron, and when that was done, appeared no more.

When Lady Byron was thus disappointed in the great benefit which it was believed her son would have received from me, she sought no more for assistance of any kind; and, in due course of time, his Lordship proceeded to Harrow, and thence to Cambridge.

After I had carefully examined his foot, I was convinced that, although he was at that time near twenty years of age, it was in such a state, that I could have completely cured him, if he could have submitted to the seclusion which he must have borne for so long a time as would have been necessary to effect a cure.

To explain this, it should be told that all the cures which, at that time, had been performed by me, were effected by using mechanical contrivances of different constructions, which were employed in various directions, and changed, altered, or removed, from time to time, as existing circumstances rendered necessary; if this course was followed steadily, the patient was cured; if it was interrupted, partial relapse took place; and, in short, nothing but the most persevering attention could have ensured success. The instruments that he must have used were cumbersome to the person, and disagreeable in appearance,—two circumstances which would necessarily prevent him from going into society, or engaging in those pursuits which suited with his rank, inclinations, and line of life. After having duly considered all the circumstances, his Lordship made his determination; he expressed bitter regret that the vile trick which had been practised upon him in early life, had cheated him of that time which might have been, without inconvenience, employed in effecting a cure, but which he could not now engage in without the greatest injury to his future pursuits: he was now almost of age, and must, in the nature of things, take his seat in the house of peers, and engage in other things that were suited to his rank, and which he could not avoid without injury; for these reasons he resolved not to attempt a cure, which, it was more than probable, circumstances would compel him to interrupt, or even render abortive.

The next question was, what could be done to alleviate the inconveniences he laboured under? I annex two sketches that I made from a cast of his foot; one view was looking at the outside, the other at the inside of his leg; by these it will be seen, that when he had no artificial support he stood upon the outside of his foot, but all the parts of it had so much flexibility, that by using some exertion with both my hands, I could turn the foot about so much as to bring the sole, and the heel likewise, very near to the ground: the leg was much smaller than the other leg. By making the inside of the shoe of a peculiar form, and some other precautions, and by placing additional substances upon the smallest leg, they made it appear equal in size to the other, so that, when he was dressed, his legs and feet appeared to be so equal, that common observers did not perceive any difference between them in the usual intercourse of society. In this state he continued, from the time that I first saw him, soon after the publication of his "Hours of Idleness," till he went on his first voyage to Greece; upon that occasion he carried with him as many of the articles that I had invented for his foot as would serve till his return, when he continued to use them so long as he remained in England; and when he left England the last time, he took a fresh supply, and I saw him no more; though I once received an order from him while he was on the Continent, to send him another set. To execute, effectually, the means of concealing the defect in his leg and foot, it was necessary that his Lordship should be present; of course, after he had left England, it was impossible that it could be done; still he was desirous of concealing it as much as the circumstances he was in would allow, by his manner of managing his dress, by keeping his foot under the table, or by any other artifice that, at the time, he could practise to keep it out of sight.[1]

THE ROYAL COMMISSION ON VIVISECTION.

WE are informed that His Majesty the King has been pleased to appoint a Royal Commission on Vivisection. The members of the Commission are as follows:—Chairman, the Right Hon. Viscount Selby; Colonel the Right Hon. Amelius Richard Mark Lockwood, C.V.O., M.P.; Sir William Selby Church, Bart., K.C.B., M.D.; Sir William Job Collins, M.P., M.D.; Sir John McFadyean, M.B.; Mr. Mackenzie Dalzell Chalmers, C.B., C.S.I.; Mr. Abel John Ram, K.C.; Dr. Walter Holbrook Gaskell, F.R.S.; Mr. James Tomkinson, M.P.; and Dr. George Wilson, with Captain Charles Clive Bigham, C.M.G. (Secretary).

The terms of reference are "To inquire into and report upon the practice of subjecting live animals to experiments, whether by vivisection or otherwise; and also to inquire into the law relating to that practice and its administration; and to report whether any, and if so what, changes are desirable."

The Commission will not sit until about the end of October and its offices are to be at Chapel-place, Delahay-street, Westminster, S.W.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8349 births and 6398 deaths were registered during the week ending Sept. 15th. The annual rate of mortality in these towns, which had been equal to 18·3 and 22·3 per 1000 in the two preceding weeks, declined last week to 21·1. During the first 11 weeks of the current quarter the death-rate in these towns averaged 15·8 per 1000, the rate during the same period in London being 15·3. The lowest death-rates in the 76 towns during the week under notice were 4·8 in Hornsey, 8·6 in Halifax, 9·3 in Leyton, and 11·0 in Plymouth; the rates in the other towns ranged upwards to 34·9 in Preston, 35·4 in Hanley and in Warrington, 36·0 in Burnley, 36·1 in Grimsby, and 39·6 in Merthyr Tydfil. The 6398 deaths in the 76 towns showed a decline of 356 from the high number returned in the previous week, but included no fewer than 2523 which were referred to the principal epidemic diseases, against numbers increasing from 362 to 2571 in the nine preceding weeks; of these, so many as 2311 resulted from diarrhœa, while 66 were referred to whooping-cough, 53 to diphtheria, 34 to measles, 32 to "fever" (principally enteric), 27 to scarlet fever, and one to small-pox. The deaths from these epidemic diseases were equal to a mean annual rate of 3·3 per 1000 in the 76 towns and to 5·5 in London. The death-rate from these epidemic diseases did not exceed 1·2 in Hornsey, 1·5 in Bournemouth, and 1·9 in Halifax; whereas it ranged upwards in the other large towns to 16·4

[1] Excerpt from letter, accompanied by two sketches, signed "T. Sheldrake, No. 7, Devonshire street, Portland-place."

in Coventry and in Tynemouth, 17·0 in Preston, 20·3 in Warrington and in Grimsby, and 20·4 in Hanley. The deaths referred to diarrhœa (mainly of infants under one year of age), which had steadily increased in the 14 preceding weeks from 50 to 2342, slightly declined last week to 2311; the highest annual rates from this disease during the week were 15·7 in Coventry and Preston, 18·0 in Grimsby, 19·6 in Warrington, and 20·4 in Hanley. The largest proportional mortality from whooping-cough occurred last week in Birkenhead, Merthyr Tydfil, and Swansea; from measles in Oldham and Stockport; from diphtheria in South Shields, Sheffield, Rhondda, and Reading; and from scarlet fever in Rochdale. Five deaths were referred to "fever" in Sheffield, three in Grimsby, and two both in Middlesbrough and in Nottingham. The fatal case of small-pox occurred in Devonport, as was the case in the preceding week. No case of small-pox was under treatment in the Metropolitan Asylums hospitals during the week, no case of this disease having been admitted thereto since the end of June. The number of scarlet fever cases under treatment in the Metropolitan Asylums hospitals and in the London Fever Hospital, which had been 3042 and 3067 on the two preceding Saturdays, further rose to 3075 at the end of the week under notice; 440 new cases were admitted to these hospitals during the week, against 317 and 415 in the two previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 103, 109, and 143 in the three previous weeks, declined again last week to 105, and were 27 below the corrected average in the corresponding week of the four preceding years, 1902–05. The causes of 40, or 0·6 per cent., of the deaths registered in the 76 towns during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, West Ham, Bradford, Newcastle-upon-Tyne, and in 50 other large towns; the proportion of uncertified deaths showed, however, a considerable excess in Liverpool, Rochdale, Barrow-in-Furness, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 13·8, 14·2, and 15·6 per 1000 in the three preceding weeks, further rose to 16·8 in the week ending Sept. 15th, but was no less than 4·3 below the mean rate during the same week in the 76 English towns. The rates in the eight Scotch towns ranged from 12·8 and 13·8 in Aberdeen and Edinburgh to 17·9 in Glasgow and 23·1 in Dundee. The 576 deaths in the eight towns showed a further increase of 43 upon the numbers returned in recent weeks, and included 136 which were referred to the principal epidemic diseases, against 80 and 85 in the two preceding weeks. These 136 deaths were equal to an annual rate of 4·0 per 1000, which was, however, 4·3 below the rate from the same diseases in the 76 English towns. Of these 136 deaths, 104 resulted from diarrhœa, 12 from whooping-cough, eight from "fever," five from scarlet fever, three from measles, three from diphtheria, and one from chicken-pox. The deaths referred to diarrhœa in the Scotch towns, which had been 48 and 62 in the two previous weeks, further rose last week to 104, and considerably exceeded the number in any previous week of this year; they included 67 in Glasgow, 10 in Dundee, eight in Paisley, six in Edinburgh, and five both in Leith and in Greenock. Six of the 12 fatal cases of whooping-cough occurred in Glasgow, three in Dundee, and two in Greenock. Of the eight deaths referred to "fever" five were returned in Glasgow and two in Paisley, and two in Glasgow and one in Paisley were certified as cerebro-spinal meningitis. Four of the five fatal cases of scarlet fever occurred in Glasgow, as did two of the three deaths from measles. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 61 and 50 in the two preceding weeks, rose again to 58 in the week under notice, but were five below the number returned in the corresponding week of last year. The causes of 25, or 4·3 per cent., of the deaths registered during the week were not certified; the mean proportion of uncertified deaths in the 76 English towns last week did not exceed 0·6 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had steadily increased in the six preceding weeks from 16·8 to 24·1 per 1000, further rose to 29·4 during the week ending Sept. 15th. During the first 11 weeks of the current quarter the death-rate in the city averaged 20·7 per 1000, the mean death-rate during the same period being only 15·3 in London and 12·0 in Edinburgh. The 214 deaths of Dublin residents during the week under notice showed a further increase of 39 upon the numbers returned in the six preceding weeks, and included 43 which were referred to the principal epidemic diseases, against 28 and 52 in the two previous weeks; these 43 deaths were equal to an annual rate of 5·9 per 1000, the death-rate during the week from the same diseases being 5·5 in London and only 1·1 in Edinburgh. Of these 43 deaths no fewer than 39 were referred to diarrhœa (against 27 and 49 in the two preceding weeks), one each resulted from scarlet fever, diphtheria, whooping-cough, and "fever," and not one either from small-pox or measles. The deaths both of infants and of elderly persons showed a marked increase upon recent weekly numbers. Five inquest cases and two deaths from violence were registered; and 65, or 30·4 per cent., of the deaths occurred in public institutions. The causes of seven, or 3·3 per cent., of the deaths registered during the week were not certified.

VITAL STATISTICS OF LONDON DURING AUGUST, 1906.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·8 per 1000 of the population, estimated at 4,721,217 persons in the middle of the year. In the three preceding months the rates had been 6·4, 7·6, and 7·7 per 1000 respectively. The lowest rates last month were recorded in Kensington, Chelsea, City of Westminster, Stoke Newington, Hackney, and Holborn; and the highest rates in Shoreditch, Bethnal Green, Southwark, Bermondsey, Deptford, and Greenwich. One case of small-pox was notified last month, against six, ten, and none in the three preceding months; no small-pox patients remained under treatment in the Metropolitan Asylums hospitals at the end of the month. The prevalence of scarlet fever showed a considerable diminution from that recorded in either of the two preceding months; this disease was proportionally most prevalent in the City of London and in the boroughs of Shoreditch, Bethnal Green, Southwark, Bermondsey, and Greenwich. The Metropolitan Asylums hospitals contained 3012 scarlet fever patients at the end of last month, against 2462, 2705, and 2998 at the end of the three preceding months; the weekly admissions averaged 338, against 321, 354, and 395 in the three preceding months. Diphtheria was rather less prevalent in August than it had been in the preceding month; the greatest proportional prevalence of this disease occurred in Finsbury, Bethnal Green, Southwark, Bermondsey, and Greenwich. The number of diphtheria patients in the Metropolitan Asylums hospitals, which had been 760, 782, and 878 at the end of the three preceding months, had declined again to 834 at the end of last month; the weekly admissions averaged 111, against 98, 114, and 135 in the three preceding months. Enteric fever was more prevalent last month than in any other month of this year except June. Among the various metropolitan boroughs this disease showed the greatest proportional prevalence in Chelsea, St. Marylebone, St. Pancras, Southwark, Bermondsey, and Greenwich. There were 103 enteric fever patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 41, 93, and 99 in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Holborn, Bethnal Green, Stepney, and Deptford. The 26 cases of puerperal fever included three belonging to Lambeth, three to Wandsworth, and two each to Hammersmith, Poplar, Southwark, and Woolwich.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ending Sept. 1st the deaths of 7160 persons belonging to London were registered, equal to an annual rate of 15·8 per

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1906.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1906.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of Infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,721,217	1	1811	663	—	141	—	26	418	1	3066	6·8	—	97	40	57	63	—	20	1	1789	2067	4·6	7160	15·8	221
West Districts.																										
Paddington	148,913	—	66	17	—	2	—	1	12	—	98	6·9	—	2	1	—	2	—	—	—	46	51	3·6	196	13·7	215
Kensington	180,952	—	46	11	—	1	—	1	12	—	71	4·1	—	10	1	2	1	—	—	—	69	83	4·8	266	15·3	248
Hammersmith	120,679	—	38	18	—	—	—	2	11	—	69	6·0	—	2	1	1	2	—	—	—	57	63	5·4	180	15·6	270
Fulham	161,965	—	61	24	—	4	—	1	11	—	101	6·5	—	2	1	—	3	—	1	—	71	78	5·0	224	14·4	207
Chelsea	74,672	—	17	6	—	4	—	—	5	—	32	4·5	—	3	1	—	—	—	—	—	11	15	2·1	106	14·8	198
City of Westminster	173,905	—	30	14	—	5	—	—	6	—	55	3·3	—	5	2	—	1	—	—	—	28	36	2·2	202	12·1	178
North Districts.																										
St. Marylebone	128,580	—	42	13	—	6	—	1	20	—	82	6·7	—	8	2	—	—	—	1	—	30	41	3·3	170	13·8	117
Hampstead	89,633	—	31	12	—	2	—	—	3	—	48	5·6	—	1	1	1	—	—	—	—	4	6	0·7	53	6·2	56
St. Pancras	236,455	—	72	27	—	13	—	—	23	—	135	6·0	—	4	1	3	2	—	3	—	69	82	3·6	339	15·0	227
Islington	344,987	1	101	27	—	13	—	1	21	—	164	5·0	—	3	2	—	—	—	—	—	61	66	2·0	433	13·1	156
Stoke Newington	53,217	—	11	2	—	1	—	—	1	—	15	2·9	—	—	1	—	1	—	—	—	5	7	1·4	68	13·3	165
Hackney	230,721	—	60	19	—	1	—	1	19	—	100	4·5	—	3	—	—	6	—	—	—	75	84	3·8	324	14·6	201
Central Districts.																										
Holborn	55,805	—	8	3	—	2	—	—	8	—	21	3·9	—	1	—	2	—	—	—	—	11	14	2·6	87	16·3	108
Finsbury	97,466	—	38	27	—	3	—	1	5	—	74	7·9	—	3	—	4	1	—	—	—	41	49	5·2	194	20·8	246
City of London	21,367	—	14	4	—	—	—	—	—	—	18	8·8	—	1	—	—	—	—	—	—	1	2	1·0	36	17·6	132
East Districts.																										
Shoreditch	116,108	—	90	18	—	3	—	1	13	—	125	11·2	—	1	3	2	3	—	1	—	74	84	7·5	254	22·8	296
Bethnal Green	130,609	—	88	26	—	5	—	1	26	—	146	11·7	—	6	1	6	4	—	1	—	75	93	7·4	274	21·9	274
Stepney	307,176	—	102	58	—	6	—	1	53	—	220	7·5	—	12	3	2	3	—	5	—	169	194	6·6	587	19·9	221
Poplar	170,673	—	52	27	—	6	—	2	18	—	105	6·4	—	12	—	8	2	—	1	—	158	181	11·0	374	22·9	341
South Districts.																										
Southwark	209,143	—	191	50	—	18	—	2	17	1	279	13·9	—	1	5	4	7	—	1	—	88	106	5·3	376	18·8	256
Bermondsey	128,629	—	98	45	—	6	—	—	16	—	165	13·4	—	3	4	4	3	—	1	—	70	85	6·9	262	21·2	230
Lambeth	315,774	—	87	47	—	12	—	3	24	—	173	5·7	—	4	—	7	7	—	2	—	127	147	4·9	492	16·2	213
Battersea	179,622	—	87	21	—	3	—	—	11	—	122	7·1	—	4	1	2	6	—	2	—	61	76	4·4	232	13·5	219
Wandsworth	273,381	—	91	28	—	9	—	3	23	—	154	5·9	—	5	3	1	2	—	—	—	107	118	4·5	358	13·7	239
Camberwell	274,132	—	86	19	—	2	—	1	18	—	126	4·8	—	—	—	1	3	—	—	—	90	94	3·6	398	15·1	227
Deptford	115,495	—	67	18	—	1	—	1	21	—	108	9·8	—	—	1	1	—	—	—	—	60	62	5·6	183	16·5	258
Greenwich	105,350	—	65	45	—	6	—	—	7	—	123	12·2	—	1	4	3	2	—	—	—	31	41	4·1	135	13·4	256
Lewisham	148,463	—	39	18	—	3	—	—	9	—	69	4·8	—	—	—	1	2	—	—	1	63	67	4·7	198	13·9	244
Woolwich	127,345	—	33	24	—	4	—	2	4	—	67	5·5	—	1	1	2	—	—	1	—	37	42	3·4	159	13·0	155
Port of London	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

1000 of the population; in the three preceding months the rates had been 13·8, 11·9, and 11·3 per 1000. The death-rates last month ranged from 6·2 in Hampstead, 12·1 in the City of Westminster, 13·0 in Woolwich, 13·1 in Islington, 13·3 in Stoke Newington, and 13·4 in Greenwich, to 19·9 in Stepney, 20·8 in Finsbury, 21·2 in Bermondsey, 21·9 in Bethnal Green, 22·8 in Shoreditch, and 22·9 in Poplar. The 7160 deaths from all causes in London last month included 2067 which were referred to the principal infectious diseases; of these, 97 resulted from measles, 40 from scarlet fever, 57 from diphtheria, 63 from whooping-cough, 20 from enteric fever, one from ill-defined pyrexia, and 1789 from diarrhœa. Among the metropolitan boroughs these diseases caused the lowest rates in Chelsea, the City of Westminster, Hampstead, Islington, Stoke Newington, and the City of London; and the highest rates in Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford. The 97 deaths from measles were 29 fewer than the average number in the corresponding periods of the four preceding years; this disease was proportionally most fatal in Kensington, Chelsea, St. Marylebone, City of London, Bethnal Green, Stepney, and Poplar. The 40 fatal cases of scarlet fever were six below the corrected average number; among the various metropolitan boroughs the greatest proportional mortality from this disease occurred in St. Marylebone, Stoke Newington, Shoreditch, Southwark, Bermondsey, and Greenwich. The 57 deaths from diphtheria showed a slight decline from the average number in the corresponding weeks of the four preceding years; diphtheria was proportionally most fatal last month in Holborn, Finsbury, Bethnal Green, Poplar, Bermondsey, and Greenwich. The 63 fatal cases of whooping-cough were 52 below the corrected average; among the various metropolitan boroughs the highest death-rates from this disease were recorded in Hackney, Shoreditch, Bethnal Green, Southwark, and Battersea. The 21 deaths from "fever" showed a decline of 17 from the average number in the corresponding periods of the four preceding years; of these 21 deaths five belonged to Stepney, three to St. Pancras, and two each to Lambeth and Battersea. The 1789 fatal cases of diarrhœa were more than 300 in excess of the average; among the various metropolitan boroughs this disease was proportionally most fatal in Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month was more than 13 per cent. above the average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 221 per 1000. The lowest rates of infant mortality were recorded in St. Marylebone, Hampstead, Islington, Stoke Newington, Holborn, the City of London, and Woolwich; and the highest rates in Hammersmith, Shoreditch, Bethnal Green, Poplar, Southwark, Deptford, and Greenwich.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: E. Corcoran to the *President*, additional, for annual survey of medical stores at Deptford Yard; and P. V. Jackson to the *Majestic*. Surgeons: T. F. O'Keeffe to the *President*, additional, for annual survey of medical stores at Deptford Yard; H. M. Braithwaite to the *Britannia*, on completing; and E. A. G. Wilkinson to the *Victory*, to be lent to Royal Naval College, Osborne. Civil Practitioner: J. Hunter to be Surgeon and Agent at Cockburnspath.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Alfred V. Lane retires on retired pay (dated Sept. 15th, 1906). Lieutenant John W. L. Scott from the Seconded List, to be Lieutenant (dated Sept. 1st, 1906).

The following officers attached to the Aldershot Army Corps have been selected for service in India:—Lieutenant-Colonel T. J. R. Lucas, C.B., Lieutenant-Colonel H. P. G. Elkington, Lieutenant J. S. Dunne, and Major H. S. Peeke. Major H. C. French has been granted leave to Nov. 12th next, on medical certificate. Captain T. J. Crean, V.C., will shortly retire from the army.

VOLUNTEER CORPS.

Rifle: 2nd Volunteer Battalion, the Royal Welsh Fusiliers: Surgeon-Lieutenant-Colonel E. Williams is granted the honorary rank of Surgeon-Colonel (dated Sept. 15th, 1906). 3rd Volunteer Battalion the Duke of Wellington's (West Riding Regiment): Surgeon-Captain W. M. Gabriel to be Surgeon-Major (dated Sept. 15th, 1906). 2nd Volunteer Battalion the Queen's Own (Royal West Kent Regiment): Surgeon-Captain J. Hamilton resigns his commission (dated August 28th, 1906); James Hamilton (lately Surgeon-Captain) to be Captain (dated August 28th, 1906). 1st (Renfrewshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Lieutenant-Colonel T. Philip is borne as supernumerary whilst holding the appointment of Brigade-Surgeon-Lieutenant-Colonel, Senior Medical Officer, Clyde Volunteer Infantry Brigade (dated August 20th, 1906).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Bearer Companies: Gloucester and Somerset: Captain W. Thompson resigns his commission (dated Sept. 15th, 1906). Leicester and Lincoln: Lieutenant M. S. W. Gunning to be Captain (dated Sept. 15th, 1906).

MENTIONED IN DESPATCHES.

Despatches relating to operations in Northern and Southern Nigeria and in the East Africa Protectorate are published in the *London Gazette* of Sept. 18th. Mr. A. W. S. Smythe, Deputy Medical Officer, Southern Nigeria Medical Service, is commended for having travelled with Lieutenant Irvine, who was dangerously wounded at Ijonnema, in a native canoe to Sapele. After handing over his patient to a medical officer Mr. Smythe returned and attended to the wounded, being 40 hours without rest. Mr. Collett, Senior Medical Officer, Southern Nigeria Medical Service, is also mentioned. Dr. W. R. Henderson, C.M.G., is the Principal Medical Officer referred to in the following paragraph: "The medical arrangements made by the Principal Medical Officer and his staff [for the Nandi Field Force] were satisfactory. The health of the troops and transport porters was good throughout the period of operations. Exposure to cold and inclement weather accounted for the invaliding of six officers (15 per cent. of the British officers on the strength); the health of the remainder was, however, good." Later in the despatch Dr. Henderson's work is said to be "deserving of mention." The medical arrangements in connexion with the operations in the Munshi country "were very good and complete. An outbreak of small-pox among the carriers looked serious at one time but all suspicious cases were isolated and an epidemic checked. ..... Staff-Sergeant L. Woodell, Royal Army Medical Corps, was most energetic and untiring in the performance of his duties. The excellent work performed by him during the Yola campaign of 1901 was very highly commended by Colonel T. L. N. Morland, C.B., D.S.O., in his despatches."

THE POST OF HONORARY PHYSICIAN AND HONORARY SURGEON TO THE KING.

A special Army Order, dated Sept. 15th, contains the following paragraph: "Six of the most meritorious officers of Our Army Medical Service, on the active list, shall be named Our Honorary Physicians and six Our Honorary Surgeons. On appointment as one of Our Honorary Physicians or Honorary Surgeons, an officer under the rank of colonel in Our Royal Army Medical Corps may be promoted to the brevet rank of colonel. An officer shall relinquish the appointment of Honorary Physician or Honorary Surgeon on retirement."

TINNED FOOD FOR SOLDIERS.

In notifying the properties of good tinned meat, fish, fruit, vegetables, &c., to troops in the Western Command, it is intimated that the tin should not bulge, the top and bottom should be concave and not flat or convex, and the sides should be free from irregular bulgings or indentations. When struck the tin should not give a hollow or drum-like sound, and no gas should exude when it is opened. Any jelly surrounding the meat should be in a solid and not in a liquid state; in very hot weather the jelly sometimes liquefies. There should be no disagreeable smell about the contents when removed or cut into and no unpleasant taste when eaten. If a tin has two solder marks on it it is liable to suspicion, though not necessarily unsafe for consumption.

Our contemporary the *Indian Medical Gazette* for August contains the following, under the heading of "Doctor and Patient":—

The Government of India have recently had under their consideration the question of the obligation of a medical officer of Government

to supply, on a demand made by the patient's official superior, information regarding the nature of the illness of a Government servant whom he is attending in his official capacity. After a full consideration of the matter they have arrived at the conclusion that when the particulars of a Government servant's illness are required in the interests of Government by his official superiors, the Government medical officer who has dealt with his case in his official capacity may be required to supply them without infringing the relations which ordinarily obtain between a patient and his medical adviser. They are, however, impressed with the objections to confidential communications between the official superior and the medical adviser of a subordinate and, since the information in question must almost invariably be required in connexion with the grant of leave, they think it advisable that it should ordinarily be demanded, if at all, from the subordinate himself, who can obtain it from his medical attendant in the way in which the somewhat analogous statements required to support an application for leave on medical certificate are obtained. Any cases of the kind which may in future arise should be dealt with in the manner suggested above. We think that it will be agreed that the above is a very fair and satisfactory solut'on of a difficult matter.

It has been decided to discontinue the wearing of side-arms by all ranks of the Royal Army Medical Corps (Regular, Militia, and Volunteer) below the rank of staff sergeant.

Correspondence.

"Audi alteram partem."

A CASE OF PRIMARY INTESTINAL ANTHRAX IN MAN.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of May 12th, p. 1306, you were good enough to publish a paper by me on a Case of Primary Intestinal Anthrax in Man. Since the publication thereof Mr. A. M. Trotter, the chief officer of the corporation meat inspection department of Glasgow, has written to me taking serious exception to what I stated in the second paragraph of p. 1307 of that issue and particularly to the following sentence: "All the carcasses to which suspicion could be attached had been passed by the inspector." I have written Mr. Trotter that the statements to which he objects were founded on an extract from the fortnightly report of the medical officer of health of Glasgow to the committee of health of that city, which had been furnished to me for the purposes of my paper by Dr. A. K. Chalmers, the medical officer. At the time of writing the paper I was not aware that subsequent to the date of that report the attention of Dr. Chalmers had been called to the corresponding sentence in his report and that he had explained to a meeting of that committee on May 8th, 1905: "That in his opinion that passage was not, and that at the time it was written it was not intended to be, a reflection of any kind against the department of the veterinary surgeon." Had I, prior to sending my paper to you for publication, been made aware of this explanation by the medical officer I should certainly have respected the same. The passages in question did not suggest to me any reflection upon the corporation meat inspection department. On the contrary, I regarded, and do still regard, the fact that the animals and carcasses had all gone through the usual inspection as a point against the theory of infection through meat. I desire, therefore, to submit, in fairness to Mr. Trotter and his department, that the statements in question were not intended as reflections upon the meat inspection department of the city of Glasgow. It was with regret that I heard that those statements had been interpreted as implying censure on that department and that my paper should have given currency to statements which Mr. Trotter feels so acutely as reflections. I should be obliged if you would publish this letter of explanation in your next issue.

I am, Sirs, yours faithfully,

Glasgow, Sept. 14th, 1906. JOHN H. TEACHER.

THE INDUCTION OF HYPNOSIS.

To the Editors of THE LANCET.

SIRS,—The article by Dr. Edwin Ash under the above heading in THE LANCET of August 25th, p. 501, will no doubt be a stimulus to medical men to study the value of suggestion and put into practice this useful therapeutic agent, for hypnotism, although extensively practised by many able observers and officially recognised, yet can hardly be described as well known. This is partly due, not only to the prevalent idea of its uncanny nature, as Dr. Ash aptly puts it, but more so to the confused idea of its danger—an argument which helps to stay both study and practice of hypnotism. The idea is confused because even at this moment most men in the medical profession are ignorant of its principles. The various phases of its development down to the present give evidence of the fact that while many, severely ignoring and condemning even tangible proofs, blinded by their materialistic zeal, overlook entirely the presence and importance of that greatest of all magnets, the human will; and while trying to explain all the mysteries of life by chemical, physical, and mechanical laws, forget that the mind also has something to do with the human organism and that there exists a psycho-therapy as surely as a psycho-biology. The more the idea of hypnotism is freed from coarse errors the more will it become of real benefit. The proper method to bring it forward would be to demonstrate its stages and the various phenomena in a practical way, no amount of reading the subject will create a hypnotist; and I should suggest to Dr. Ash in his enthusiasm for the subject that he might hold a demonstration to the Medical Society at St. Mary's Hospital, to which a number of outside medical practitioners should be invited; that this procedure would be productive of good there could be no doubt. In May I gave an address on hypnotism to the Medical Society at the Middlesex Hospital, at which other medical men were present; the various phases of hypnosis were practically demonstrated on several subjects; that enthusiasm and interest were shown was proved by the number of questions asked and the discussion that arose on the various points. This is far better than laying down hard-and-fast rules in writing. Dr. Ash thinks that certain people who are usually in the best of health, unaccustomed to worry over trifles, and do not know what it is to have disturbed sleep, are the subjects most frequently found who are susceptible to hypnosis; although this is true to some extent I do not think one can really generalize as to who is susceptible and who is not. No doubt many such cases are good subjects and those accustomed to passive obedience, such as soldiers, are often favourable for hypnosis; but, generally speaking, it is difficult to be certain who is and who is not susceptible—experience alone shows. The character has seemed to me to be of greater importance than the temperament; if noble motives predominate over lower and merely personal ones; if the person be in earnest and, above all, confiding and believing, then such qualities will be found in many cases favourable for hypnotism. Of course, the insane as well as the inebriate are difficult subjects for hypnosis chiefly on account of their erratic thoughts; nevertheless, suggestion has proved useful in some of these cases. The instructions given for inducing hypnosis by Dr. Ash by various methods may prove successful in some cases but some of the methods will undoubtedly fail. I have tried Braid's method of fixed gazing but have signally failed in some cases; the idea seems to be that fixed gazing causes fatigue of the senses, just as certain phenomena in the hypnotic state can be made apparent by mechanical irritation; this also is incorrect as a parallel. Hypnosis never occurs without suggestion or auto-suggestion; it is not pathological but physiological, not in its origin somatic but psychic; fatigue is a factor, not the entity. Suggestion not only prepares but dominates after hypnosis has produced passiveness and receptiveness. Although Braid relied mainly on fixed gazing later he hypnotised as readily in the dark as in the light and easily succeeded with the blind; as the result of this he concluded that the influence acted directly on the mind, not through the optic nerves, and that the best method was direct verbal suggestion. The gazing, however, is useful just as passes only for concentrating the attention, they are not essential and alone are totally untrustworthy except through auto-suggestion. The method of fascination mentioned by Dr. Ash does not exist as a special condition; it is simply an exalted susceptibility to suggestion induced by an influence on the subject's imagination. Whether this influence reaches the sensorium through eye, speech, or touch, &c., the psychical condition obtained is always the same. The best method for the modern hypnotiser is to borrow in technique from Mesmer and Liébault with equal impartiality. The general practitioner will be wise to choose his cases; the very name of hypnotism conveys to many people some peculiar mystic influence; treatment by suggestion is a better term to use when it is necessary to give information to patients as to this line of treatment.

Dr. Lloyd Tuckey records the case of a medical man whose practice was entirely ruined for some little time by this method of treatment, and not until definite assurances were given that such treatment would be abandoned could he resume his practice.

I agree with Dr. Ash as to the absence of any untoward effects in treatment by suggestion, and although his opinion is likewise as to any mystic influence between the operator and the subject, I think the latter statement requires some qualification, for it occasionally happens that some mystic influence does occur in certain subjects—they are too easily susceptible to hypnotisation when they have often been put into somnambulism; even the first-comer may sometimes put them into this condition by surprise, simply closing their eyes. Such a susceptibility or influence to hypnosis is a real danger, delivered over to the mercy of anyone. Deprived of psychical and moral resistance certain somnambulists become weak and are moulded by the will of the suggestionist. Those moralists who are careful of human dignity and who are pre-occupied with the thought of such great possibilities of danger are in the right. They are right to condemn a practice which may rob man of his free will without the possibility of resistance on his part; they would be a thousand times right if the remedy were not side by side with the evil. When the medical man foresees such a tendency in these cases of somnambulism he should take care to say during sleep (and it is a good rule to follow), Nobody will be able to hypnotise you in order to relieve you unless it be your physician; and the subject, obedient to the command, is refractory to any foreign suggestion.

I am, Sirs, yours faithfully,

JOHN R. O'BRIEN, M.D. Brux.,
L.R.C.P. &c. Irel.

North Kensington, W., August 26th, 1906.

OPERATIVE TREATMENT IN INSANITY.

To the Editors of THE LANCET.

SIRS,—The operation of trephining may be, as Dr. T. Claye Shaw asserts, a safe one, and unattended by dangerous or troublesome consequences, but before we bore a hole in a man's skull, and leave him with a permanent gap in his brain-pan, I think we ought to have some clear notion of the benefit that he may derive from the operation, and some estimate of the likelihood that he will gain any benefit, to compensate him for a defect, that may or may not be dangerous or troublesome, but that most of us would prefer to be without.

What are the benefits to be expected from the operation? "It gives an opportunity," says Dr. Claye Shaw, "of seeing the actual condition of the brain tissue and the membranes, so that an opinion on the prognosis of the case is rendered more reliable." I am sure others of your readers besides myself would be glad to know what information bearing on the prognosis of a case of ordinary insanity, not due to gross intracranial disease, is to be obtained from what can be seen of the brain tissue and the membranes through a trephine hole. Dr. Claye Shaw tells us that if desired a drainage of fluid from the congested area can be maintained before the wound is actually closed. No doubt Dr. Claye Shaw has evidence that there is a congested area (of the brain or its membranes presumably) in insanity, and it would be very interesting if he would communicate this evidence. But can a drainage be maintained which shall be limited to this area? In view of the free intercommunication of all parts of the sac of the arachnoid, I should have thought this doubtful. Would Dr. Claye Shaw insert a drainage-tube into the substance of the brain? or between the brain and the arachnoid? If there is raised intracranial pressure in insanity, due to excess of cerebro-spinal fluid, can it not be relieved more rapidly, more easily, and more safely, by lumbar puncture than by trephining? Dr. Claye Shaw hopes that what has been accomplished with such marked success by operative surgery in the abdomen may be extended to the skull and its contents; and he has every reason to believe that the early adoption of operation would have cured many people who for want of it have proceeded to incurable dementia. Perhaps Dr. Claye Shaw will explain. The peritoneal cavity is opened for the purpose of removing a new growth, or a blood clot, or a gall-stone, or a patch of sloughing bowel; or to relieve a constriction, or to draw out an intussusception, or to give exit to pus, or for some such definite aim and intention. For what purpose is the skull to be opened in a case of insanity? If there is blood or pus in the arachnoid cavity, it may or may not be justifiable to trephine in order to remove and wash out the intrusive body, but blood or pus in the arachnoid does not produce the clinical symptoms of insanity. It causes coma, and need not be discussed in this connexion. For what, then, are we to open the skull in insanity? Supposing we lay bare the brain, what are we to do to it, to abate the insanity? Supposing the nerve cells are swollen, supposing the fibres are disintegrating, supposing the neuroglia is increasing and contracting, can we restore them by any surgical procedure? What is the aim, what is the purpose, of the surgical operation? Is it to relieve pressure? Is it to drain fluid away? What evidence is there that in insanity there is increased intracranial pressure? Has choked disc ever been found in insanity, apart from gross intracranial disease? What evidence is there of any excess of fluid requiring removal? No doubt Dr. Claye Shaw considered all these questions very carefully before he advocated cranial surgery in insanity. May I beg him to enlighten those who are still in ignorance?

I am, Sirs, yours faithfully,

Wimpole-street, W., Sept. 16th. CHAS. MERCIER.

TO MEDICAL FREEMASONS.

To the Editors of THE LANCET.

SIRS,—May I once again through the medium of your widely read columns appeal to medical Freemasons for their votes for the Masonic charitable institutions on behalf of the medical candidates at the forthcoming elections? By collecting and organising the distribution of these votes all the medical candidates within the last two years have been successful and we hope that with the continued support of the medical Freemasons this success may continue. The candidates are:—

Royal Masonic Institution for Girls (election on Oct. 11th): Jane Emily Frances Kershaw, daughter of the late John Cawthron Kershaw, M.R.C.S. Eng., L.R.C.P. Edin., of 48, Oxley-street, Leeds.

Royal Masonic Institution for Boys (election on Oct. 12th): Donald Mackay Forbes, son of the late Daniel Mackay Forbes, L.R.C.P., L.R.C.S. Edin., of 5, Bedford-place, Croydon. Harold Probyn Ayres, son of the late George Henry Ayres, L.R.C.S., L.R.C.P. Irel., of 56, West Derby-street, Liverpool.

Votes are earnestly solicited and will be gratefully acknowledged by Yours faithfully,

HAROLD S. SINGTON,
Secretary, St. Luke's Medical Lodge of Instruction.

St. Thomas's Hospital, Albert Embankment, London, S.E., Sept. 17th, 1906.

A SANATORIUM AND MARKET GARDEN.

To the Editors of THE LANCET.

SIRS,—The Open-Air League, whose general committee includes the Duke and Duchess of Marlborough, Lord and Lady Chelsea, Lord and Lady Iveagh, Lord Monk Bretton, Sir Edward and Lady Sassoon, Sir Edmund Hay Currie, the Honourable W. F. D. and Lady Esther Smith, Mrs. Humphry Ward, &c., and whose advisory committee includes Dr. James F. Goodhart, Dr. George A. Heron, Dr. Wilfred J. Hadley, Dr. Percy Kidd, and Dr. Vaughan Harley, was formed early in the present year to provide inexpensive sanatorium accommodation for the consumptive poor, to educate the public as to the advantages of the open window, and to find occupation for consumptives cured in sanatoriums, which will enable them to escape the dangers which they must incur if they return to the unsuitable conditions under which their health broke down.

The Open-Air League is opening its first sanatorium colony at Great Clacton, Essex, in the course of a few weeks. The institution will be conducted by Mr. John E. Chapman, who for some years did such valuable work in sanatorium treatment of consumptives in association with Dr. Noel D. Bardswell, now medical superintendent of the King's Sanatorium at Midhurst, who is also a member of the committee of the league. The sanatorium will accommodate 25 patients, who will be in the incipient stages of the disease, and who will be taught

practical market gardening and who will be kept in residence sufficiently long to enable them to recover their health and to fit them, either independently or in association with the work of the league, to earn a livelihood away from the dangers of town life. The arrangements that have been made are of so strictly economical a character that the total expenditure will barely exceed £1500 a year, or an average inclusive cost of 25*s.* a patient weekly, and it is expected that even this modest figure will be reduced by the value of the work of the inmates. In the meanwhile the league undertakes a financial responsibility to enable it to discharge which it must appeal to the philanthropic public for further funds, and it is hoped that those who recognise the extreme value of the undertaking will respond generously. Fuller particulars of the objects of the league and of the undertaking herein briefly outlined will be gladly provided on application, and contributions will be gratefully received by the honorary treasurer (Lady St. Helier) or by the undersigned.

I am, Sirs, yours obediently,
CHARLES REINHARDT,
Honorary Secretary.

The Open-Air League, 79, Harley-street, W., Sept. 15th, 1906.

THE SPA TREATMENT OF THE SERIOUSLY ILL.

To the Editors of THE LANCET.

SIRS,—It does not require a very extended experience of medical practice to know that there are three main forces to be taken into consideration, the resultant of which is the important measure or measures ultimately adopted in any particular case in the treatment of disease. These are: (1) the patient; (2) the patient's friends; and (3) the medical adviser. With the desire for relief on the part of the patient and with the anxiety of devoted friends to witness an amelioration of distress every heart must sympathise. But it is the physician's duty in serious illness to indicate all that is attainable by rational treatment and so to control the very natural anxiety of friends as to prevent if possible the evil consequences of misguided attempts to attain the unrealisable. Far too many of our invalids when seriously ill are sent on a wild chase for health to some continental spa. Death far from home often overtakes them and when the disaster becomes common it is highly suggestive of error in judgment on the part of those who control, or ought to control, the situation. In face of the pleading of an insistent patient, and the pathetic anxiety of friends, the medical adviser may at times yield against his better judgment, and it therefore seems desirable that some simple principle should be determined to guide all concerned in circumstances which may be fraught with disaster.

That the rational and moderate life led at health resorts, including regularity of rest and exercise, control of quantity and quality of food, and the use of mineral waters which act upon the emunctories, is frequently highly beneficial to the comparatively robust we all admit. A health-recovering holiday at a watering-place is a delightful experience, and followed by its toning "after-cure" all that the most fastidious valetudinarian can desire. How the forefathers of the majority of us survived without all this seems now somewhat mysterious. Indeed, how the aged poor even now attain the hoary pre-eminence of a green old age in a workhouse seems still more mysterious. Yet our forefathers frequently lived long and the aged poor are always with us. The simple principle in the recommendation of spa treatment which appeals to me as rational is that *no patient seriously ill should ever be sent to a watering-place*, especially when that resort is distant. But it may be argued that the balm obtainable at such a place is not the only consideration. There is also the local physician who is to be taken into consideration. Seriously, Sirs, I ask you, can anyone—does anyone—outside the *profanum vulgus* entertain such a notion? The principles of rational diagnosis, prognosis, and treatment are not a monopoly of the "Badearzt," and correct ratiocination is surely neither ultramontane nor transpontine.

This brings us to a passing reference to the third factor in the important conclave—the medical practitioner. Rationally and strongly entertained convictions after sufficient consideration, plainly and forcibly expressed, will guide the majority of people, even when a fashionable craze tends to suck the wealthy and ailing towards the vortex of a vaunted Bethesda. Let us be true to ourselves and to the great masters of the past and it will follow, as the night the day, that the exponent of the healing art, a calling as noble as benign, will not express his opinion or utter his warnings to deaf ears.—I am, Sirs, yours faithfully,

Sept. 14th, 1906. F.R.C.P.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Health Committee: A New Appointment: Water-gas.

THE health committee contemplates the appointment of an assistant medical officer for schools. It was explained by the chairman that the post would be an experimental one for one year, adopting a principle accepted by many other populous places and taking a step in what he considered to be a right direction. The work of the assistant medical officer would be to check the spread of whooping-cough, measles, and other infectious diseases among school children. A discussion took place at the meeting of the health committee on Sept. 6th relative to the dangerous quality of gas supplied to Wavertree, Garston, and other wards, as evidenced by the report of Dr. Brislee, of the University of Liverpool, that the gas was "unnecessarily and seriously dangerous." Sir Charles Petrie pointed out that the lighting committee of the city council had very little control in the matter. The gas company had very large Parliamentary powers. The matter becomes a serious one in that it involves the health of a large section of the community and the Home Office had reported adversely on the water-gas. Dr. Richard Caton remarked that a large proportion of the population of Liverpool was daily incurring considerable peril by the inhalation of water gas. No gas was so destructive of human blood as this gas; death did not always follow, but the inhalation of small quantities was prejudicial. At Garston 45 per cent. of the total volume of gas supplied to that district consisted of this most pernicious concoction. It was finally agreed to send a copy of Dr. Brislee's report to the Home Office.

Liverpool Infectious Hospitals.

The port sanitary and hospitals committee made a tour of inspection of five municipal infectious hospitals on Sept. 3rd. Everywhere the cleanliness of the hospitals, the comfort of the patients and other advantages were remarked upon. It was observed that the promise of the committee to reduce expenditure elsewhere on the opening of the Fazakerley Hospital had been promptly redeemed. The Priory-road Hospital, which contained 46 beds, and the Garston Fever Hospital (13 beds) were found closed, while at Park-hill 100 beds were reported as out of use, the temporary pavilions being merely retained as a stand-by in case of some unforeseen emergency. Mr. John Utting, the chairman of the hospitals committee, in touching on the merits and demerits of permanent and temporary buildings for infectious diseases, declared for the former and said that the treatment, especially of diphtheria, was more successful in buildings which could be periodically cleansed in the highest degree. The washing of wooden walls could never be so thorough as the washing of tiles or of glazed bricks. Alderman Roberts, chairman of the baths committee, contended that if the people of Liverpool bathed as often as the people of ancient Rome, which city had no hospitals, infectious cases of local origin would be almost unknown.

The Care of Epileptic and Imbecile Paupers.

The clerk of the West Derby guardians reported at their meeting that with regard to the provision of accommodation for the epileptic and imbecile indoor poor chargeable to the West Derby guardians and the parish of Liverpool the Local Government Board had written stating that it had given much consideration to this matter but it appeared to it that there were legal difficulties in giving effect to the arrangements proposed in their present form. It was pointed out by the chairman of the board of guardians that a great deal of hardship and suffering was endured and money wasted through the present arrangements by which epileptics and imbeciles were housed by the two unions. The idea was that the parish of Liverpool should provide accommodation for the epileptics, and West Derby should make provision for the

imbeciles, which would enable them not only to formulate a scheme for classification but to save the ratepayers' money. It would also be extremely useful and humane to the sufferers. The clerk intimated that the scheme would be a large saving in cost and would also be a great boon to the patients, and he was still hoping that the Local Government Board would see its way to sanction the arrangement.

Liverpool School of Tropical Medicine: Operations in Greece.

Professor Savas of the University of Athens was entertained to luncheon by the Liverpool School of Tropical Medicine on Sept. 17th. The Lord Mayor, in the absence of Sir Alfred Jones, K.C.M.G., the chairman of the school, presided over the gathering at the University Club, which included Viscount Mountmorres, Professor R. W. Boyce, Professor Ronald Ross, C.B., Dr. E. W. Hope, the medical officer of health, the Hon. J. L. Griffiths (United States Consul), Mr. B. A. Malandrinos (Consul for Greece), and others. Professor Savas is a prominent pioneer of the anti-malaria campaign in Greece and at yesterday's gathering liberal support was promised from residents in this city towards coping with the scourge of Greece. The Lord Mayor, in proposing the health of Professor Savas, said that that eminent physician was here on a mission connected with the anti-malaria campaign in Greece and he assured him ready and willing assistance on behalf of the school. Professor Savas, in reply, thanked the company on behalf of the Greek Medical Society for the interest which they were taking in Greece. It was only one more instance of the sympathy and kindness which Great Britain had always shown to his country. Professor Ronald Ross in the course of an interesting speech gave an account of his researches in Greece in May last. His inquiries showed that that country was suffering very severely from the scourge and he put forward the interesting theory that malaria had not a little to do with the decline of that nation. He examined many school children in various villages and on the Kopais plain and found malaria as prevalent as it was in Africa or India. The average number of cases throughout the country worked out at about 250,000 every year and the deaths were 1760. Last year there was a bad epidemic and the cases amounted to 960,000, the deaths being 5916. Malaria stunted the growth and operated adversely in many ways upon the people. It was especially severe upon rural life and was largely responsible for its decay. Civilisation owed a debt to Greece and England ought to do something to support the anti-malaria campaign. Its aim was to get rid of malaria throughout the whole country and he trusted Professor Savas would meet with generous support. The United States Consul in an eloquent speech alluded to the glories of ancient Greece and now pleaded for free trade in human sympathy. The Liverpool School of Tropical Medicine should make this city known to mankind the world over. The gathering closed with a vote of thanks to the Lord Mayor for presiding, proposed by Viscount Mountmorres.

Sept. 18th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Typhoid Fever in Monmouthshire.

AT the end of August an outbreak of typhoid fever occurred in Pontypool, a colliery town in Monmouthshire, and it is now assuming somewhat alarming proportions. The disease has spread to the adjoining colliery towns of Abersychan and Panteg, and in the three districts 120 cases had been reported up to Sept. 15th. The population of these districts at the last census was 31,378 and they are all supplied with water from the works of a private company which has storage reservoirs for only about 12,000,000 gallons. The medical officer of health of Panteg, Mr. J. R. Essex, attributes the outbreak solely to the water-supply. The urban councils of the three districts concerned have for some time been alive to the necessity for effecting some improvement in the water-supply and have only recently received a report dealing with the question from Mr. Baldwin Latham. It appears from this report that the water company is not required under its Acts of Parliament to give a constant supply but may dole out the supply it has at its disposal throughout the district as it pleases. The council of the Abersychan district, in which there is a population of nearly 18 000 persons, has resolved that in view of the failure of the water company to provide a sufficient supply of water the time has arrived for the undertaking to be acquired by the three councils concerned. There is every reason to believe that a determined effort will now be made to improve materially the condition of the district as regards the water-supply.

Rhondda and Pontypridd Water-supply.

The water supplied to the lower portion of the Rhondda valleys and to the town of Pontypridd is still being reported as unsatisfactory. The medical officer of health of Pontypridd, Mr. Howard Davies, in a recent report states that owing to the colour of the water and the large amount of sediment it contains householders decline to make use of it for drinking purposes and resort to small springs or streams which are open to pollution. He also refers to the intermittency of the supply and anticipates still more serious conditions than those at present existing unless steps are taken to improve the service. The Rhondda urban council has at last been roused to take some definite action in the matter and has served a writ upon the waterworks company claiming that the company is bound by its Act of Parliament to keep its mains charged with water at all times under constant pressure and requiring that this should be done. An injunction has also been applied for restricting the company from allowing any water to enter the mains without being properly filtered.

Swansea Asylum.

When the Glamorgan County Asylum was erected at Bridgend in 1864 it was intended to be used by patients from all parts of the county. The rapid increase in population has necessitated frequent additions to the buildings until there is now accommodation for nearly 1800 patients. About six years ago the corporation of Cardiff had notice to withdraw the Cardiff patients and for these there is now fast approaching completion a new asylum at Whitchurch about two miles from the borough. At a later date the Swansea corporation was required to provide separate accommodation for Swansea patients. After an abortive attempt to join with the county councils of Brecon and Radnor and add to the existing asylum buildings at Talgarth, it has now been practically decided to erect an independent institution in the town of Swansea. The proposed site is an elevated one overlooking Swansea Bay and includes 50 acres with a possibility of adding about 40 acres more. Dr. Sidney Coupland, one of the Commissioners in Lunacy, has reported favourably on the proposals of the corporation, and on his suggestion the asylum committee has recommended the corporation to provide accommodation for 400 patients with administrative buildings capable of dealing with 600 patients. The population of Swansea is about 100,000.

Medical Attendance on Police Cases in Bideford.

Some discussion has lately taken place at Bideford (Devon) in reference to there being no police surgeon for the town. Only quite recently a medical man when requested by the police to visit a case of sudden death had refused to do so, and at the inquest which was subsequently held the coroner's jury drew attention to the very unsatisfactory means adopted by the police for obtaining medical assistance in cases of accident owing to there being no salaried medical officer. The matter was alluded to at the meeting of the Bideford town council held on Sept. 9th and it was suggested that a memorial should be sent to the county council urging that body to appoint a surgeon, but eventually it was decided to refer the subject to a committee.

Winsley Sanatorium for Consumptives.

At an extraordinary general meeting of the subscribers to this institution, which was held on Sept. 12th under the presidency of Dr. Lionel A. Weatherly, the trustees were authorised to raise £7500 on mortgage to enable them to discharge some of the existing debts on the building. The sanatorium has an adverse balance of £15,000. It was stated that the income of the institution must be increased by another £900 per annum and before long some effective organisation must be undertaken to put the finances on a sound basis.

Sept. 18th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Reconstruction of the Royal Infirmary, Glasgow.

AT a meeting last week of the town council of Glasgow the Lord Provost announced that the Prince and Princess of Wales would visit Glasgow in the month of April next and would then lay the memorial stone of the reconstructed Royal Infirmary. This infirmary is being reconstructed as a Diamond Jubilee Memorial to the late Queen Victoria at a cost of £400,000, one half of which has already been subscribed. It is expected that the forthcoming visit of the Prince and Princess of Wales will give an impetus to the effort to obtain further subscriptions to the building fund. During the same visit it has been arranged that the Prince will inaugurate the new laboratories at present in course of construction at the University in connexion with the chairs of physiology, materia medica, and public health.

The Western Infirmary, Glasgow.

The directors of this institution have issued an appeal for funds for further extension. The new wing now nearing completion will afford accommodation for about 70 additional beds, but these will only partially relieve the pressure on the wards. At present there are 610 patients waiting to obtain admission, many of them urgently requiring hospital treatment. In the last annual report of the infirmary it was stated that there was cubic capacity for 416 beds only, while the average number of fully occupied beds during the year was 444. Within the past ten years the number of accident cases has more than doubled, owing to the rapid development of shipbuilding yards and other public works on both sides of the river and the number of these cases will inevitably increase. According to the plans recently prepared for the extension of the buildings there are still three blocks required to complete the infirmary, affording accommodation for 150 patients. The total estimated cost of these blocks is £80,000 but the work is so planned that it can be carried out in sections. The directors are anxious that the block which is a continuation of the wing now nearing completion should be undertaken at once. This, the least expensive section, is estimated to cost £20,000 and it is hoped that the money will be speedily forthcoming.

Sept. 18th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Surgeons in Ireland: Post-graduate Course.

THE Royal College of Surgeons in Ireland announces a three weeks' post-graduate course, beginning on Monday next, Sept. 24th, and running daily, Sundays, of course, excluded, until Saturday, Oct. 13th. The institutions at which classes are to be held include the City of Dublin, Sir Patrick Dun's, the Adelaide, the Meath, the Richmond, the Rotunda, the National Maternity, the Coombe, the Mater, and the Victoria Eye hospitals, and other special hospitals and institutions. The syllabus and time-table promise adequate instruction in every branch of medical and surgical science and those who wish to join the classes or to obtain further information with regard to the scheme should communicate with Professor Fraser at the College.

The Hygiene of the Irish Primary Schools.

In the report of the Commissioners of National Education in Ireland for the school year 1905–06 we have a most deplorable picture of the primary schools in Ireland. Insufficient floor space, insufficient seating accommodation, insufficient class rooms, no provision for encouraging cleanliness, sanitation by means of inadequate lavatories—such are a few of the points mentioned, while in some districts the overcrowding is on such an aggravated scale that the health of the teachers and the pupils must alike be in danger. It seems that the medical profession will have to be the first educational authority consulted in Ireland to remedy salient abuses.

A Medical Travelling Scholarship.

Mr. R. M. Wilson of Dublin has presented £1000 to Queen's College, Belfast, to form a travelling medical scholarship to enable young medical graduates of the college to go abroad for a year for the purpose of studying in some great school of medicine before commencing practice. The scholarship, which will be worth £100 per annum, will be awarded triennially. The donor is a member of an old Belfast family.

The Appointment of a Medical Officer of Health for Belfast.

At a meeting of the public health committee of the city of Belfast a letter was read from the Local Government Board of Ireland expressing the Board's formal approval of the salary of £600 per annum fixed by the council in respect of the remuneration to be attached to the office of medical superintendent officer of health. The letter went on to state that the Board wished it to be clearly understood that the expression of its sanction of the proposed remuneration, which was made in pursuance of the statutory requirements, must in no way be taken as implying that the Board concurred in the course which the corporation had decided to adopt in the matter. The Board feared that in limiting the salary to £600 a year the corporation would fail to obtain applications from experienced and competent health officers, and it trusted if this should prove to be the case that the corporation would refuse to make an appointment and would reconsider the question of the salary. At a meeting of the citizens' health committee held on Sept. 12th grave dissatisfaction was expressed at the recent action of the city council in again ignoring the recommendations of its public health committee that a salary of £800 per annum should be offered. Is the appointment to be rushed through all the same? An advertisement inviting applications for the post appeared in the Belfast papers of Sept. 14th. It stated that applications are to be lodged with the town clerk not later than Sept. 22nd. If the appointment is to be made on Oct. 1st, as is believed to be the intention of the corporation, no time is given to advertise in the medical journals. In the Belfast daily papers of Sept. 17th the convener of the citizens' health committee draws special attention to the fact that advertisements were sent to the two medical papers, THE LANCET and the *British Medical Journal*, but only in time to appear on the 22nd, the very day on which applications are to be lodged, so that those who might be candidates from public health departments in other cities can have no knowledge of the vacancy until it is too late to apply.[1] The convener evidently believes that the absence of advertisements in THE LANCET and the *British Medical Journal* was designed and is not alone in his view. Commenting on the matter, one of the Belfast papers, the *Northern Whig*, says: "If the thing was done of set purpose it can only be stigmatised as a scandal, which would certainly justify the Local Government Board in refusing to sanction an appointment made under these conditions. If it was done through carelessness the public will form their own opinion of the business competence of those who have the matter in hand."

The Public Health of Belfast.

It has been decided to hold a citizens' meeting at an early date, the arrangements for which are to be made by a committee of the Windsor and Malone districts (where the present typhoid fever epidemic exists), the citizens' health committee, and the citizens' association. At this meeting the question of the appalling state of the health of Belfast is to be discussed, and one of the motions to be proposed will demand a commission of inquiry by the Government into the whole matter.

Diarrhœa in Belfast.

Dr. C. J. Clibborn, medical inspector of the Local Government Board, attended at the last meeting of the public health committee of Belfast for the purpose of calling attention to the large number of deaths (39 were reported as having taken place from this disease for the week ending Sept. 8th) that have been caused by diarrhœa. The Board was anxious that steps should be taken to have the most

[1] The advertisement was received at this office on Thursday, Sept. 13th, in the afternoon, after THE LANCET had gone to press. The town clerk of Belfast was at once informed what had happened.—ED. L.

careful attention paid to the food and drink supplied to the people, special attention being given to fruit and milk, particularly at this season of the year. 14 cases of typhoid fever and 16 of scarlet fever were reported up to Sept. 15th, as compared with 12 and 30 in the previous week.

Sept. 18th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

International Congress on Alimentary Hygiene.

THE First International Congress on Alimentary Hygiene and a Rational Diet for Man will be held at the Paris Faculty of Medicine from Oct. 22nd to 27th. All communications and requests for information should be addressed to M. Nourry, the general secretary, 49, Rue des Saints-Pères.

Swindling and Quackery.

The Paris police have just arrested a woman, aged 37 years, who had invented a singularly dishonest way of gaining money. She put an advertisement in the press saying that she could cure women suffering from abdominal maladies by means of a secret remedy which she possessed. When her "patients" arrived she made them undress under the pretence of wishing to examine them. During this time her maid went through their pockets and took away all the money which she could find, except a small sum, so that the unfortunate person might have enough to pay her fare back. The secret remedy consisted of nothing but water. Very often the "patients" never discovered the theft until they had returned to their own home. A large number of complaints were received by the police and ended in the arrest of the woman and her maid.

The International Students' Congress.

The International Students' Congress opened at Marseilles on August 31st, the President being M. D'Estournelles of Constant. The President of the Marseilles Students' Association delivered an address of welcome to the delegates.

A French Society of Military Medicine.

A society has just been organised with a view of forwarding the scientific development of the different bodies of military and naval surgeons by bringing about a discussion in common of questions of hygiene, medicine, and surgery which have particular bearings upon medical and hygienic questions in the army or the navy. The War Minister, the Nava Minister, and the Colonial Minister have approved of this scheme. The seat of the new society will be at Paris at the School of the Army Medical Department at Val-de-Grâce and will consist of active members (*membres titulaires*), associate members, and corresponding members. All army and navy or colonial medical men on active service may become active members on sending in an application, as well as the medical inspectors of the reserve. Army and navy and colonial medical officers on half-pay (*retraités*) can be associate members if they wish. The general assembly of active members can nominate as associate members retired military medical officers or civil medical men. Foreigners on active service, as either naval or army medical men, may be corresponding members if they wish. Retired foreign naval or military medical officers and foreign civil medical men can be nominated as corresponding members. The meetings of the society will be held fortnightly, at 2 o'clock on Thursdays, except during August and September. Any member of the society, whatever be his rank, can make communications to the society. Those wishing to be elected members of the society should communicate with the President at Val-de-Grâce.

Some Relations between Diseases of the Rhino-pharynx and the Menstrual Function.

At a meeting of the French Association for the Advancement of Sciences, which met at Lyons from August 2nd to 7th, M. Royet said that he considered that the relations above mentioned were of two classes. In the first class came those cases in which there was a discharge of blood from the genital organs immediately following upon or very shortly after any operation, however slight, upon the rhino-pharyngeal cavity. In the second class came those cases in which dysmenorrhœa improved after surgical intervention on the rhino-pharynx. Cases falling under the first class were extremely rare and only seemed to happen where the rhino-pharyngeal trouble is accompanied by vertigo and buzzing in the ears. Cases coming under the second category are much more common and their practical interest is therefore greater.

Sept. 18th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Visit of French Medical Men to Berlin.

VERY few events of interest have occurred here during the last few weeks; the University is closed, the important medical societies do not meet, and most of the members of the medical profession, especially the leading ones, are holiday-making. Medical lectures and discussions will not begin before the second half of October, the month of September being, as a rule, devoted to medical congresses of various kinds and in various places. The medical profession of Berlin at the end of August had the pleasure of welcoming a number of French medical men who were sight-seeing in Germany and in the course of their tour visited a number of the German university towns and other places of interest. A committee, of which Professor von Bergmann was the honorary president and Professor Kossmann the general secretary, showed the French visitors over the principal medical institutions in Berlin and escorted them to various places of general interest. The Urban Hospital, the Royal Garrison Hospital, and the Virchow Hospital, which is to be opened on Oct. 1st, were visited as well as the Royal Surgical Clinic, the sanatoriums at Beelitz, the accident and first-aid services, the Kaiserin Friedrich House for post-graduate study, and other public and private institutions. The State and municipal authorities gave the party every facility for seeing as much as possible during their stay in Berlin. The friendly feelings which existed between the French and German medical men were obvious on all occasions and more especially at the entertainments given in honour of the visitors. One of these events was a banquet at which a very large number of Berlin medical men were present, and the attendance would no doubt have been much greater if the visit had not taken place during the holiday season when so many residents are out of town. The French gentlemen, and some of other nationalities who had joined them for the purpose of making this trip, expressed great satisfaction, and it was resolved to appoint an international committee to arrange similar excursions to other countries, so that medical men of various nationalities might have opportunities for mutual acquaintance. Professor Kossmann was elected president of this committee, which also included a French, a Belgian, and an Italian medical man.

The International Congress of Medical Officers of Insurance Companies.

Two International Congresses on Life Insurance and Insurance against Accidents were held in Berlin from Sept. 10th to 15th. In explanation of this plurality it must be stated that they were respectively a congress of actuaries and a congress of medical officers of insurance companies. Although quite distinct, both in their organisation and in their membership, the work of the two congresses was to some extent carried on in common and on one occasion they had a joint meeting. It had been expected that Professor Kraus of Berlin would preside over the Congress of Medical Officers of Insurance Companies but in his unavoidable absence the chair was taken by Professor Unverricht of Magdeburg. The business arrangements of the congress were very good. A bound volume containing the papers to be read before the congress, with translations in English and French, was given to every member beforehand so that the discussion was greatly facilitated notwithstanding the difference of language. Tuberculosis was the first subject brought before the congress. Professor Martius of Rostock spoke on the early determination of the existence of a tendency to the disease, examining especially the question of "predisposition." He came to the conclusion that there was no specific predisposition to tuberculosis but that what had been regarded as such was in every individual case a combination of a large number of varying anatomical or physiological causes which

were subject to great fluctuations in proportion and character and which might undergo the most varied combinations. The same subject was discussed by Dr. Gottstein of Berlin and Professor Flurschutz of Gotha, who said that a liability to tuberculosis manifested itself in the constitution of the applicant long before the final illness; the applicant's constitution was below par and this condition could be verified by comparative measurements. The insurance medical officer had to take the precise numerical determination of the constitution of the applicant as the basis of all his further considerations. Dr. van Gesner of Amsterdam spoke on the mortality caused by tuberculosis. He expressed the opinion that it was not possible to diagnose with certainty the existence of tuberculosis which did not make itself evident until the lapse of years after the time of application and that if all the cases in which a possible doubt might exist were thrown out the number rejected would be excessive. Another subject of discussion was obesity and its importance in connexion with insurance. Dr. Richter of Berlin, drawing his conclusions from the large experience of the Victoria Life Insurance Company, said that the average duration of life in obese persons was shorter than that of policy-holders in general, the proportions being 47 years and 10 months in the former class as against 50 years and 1 month in the latter. Among the fatal diseases to which obese persons were liable heart disease, kidney disease, and apoplexy took the first place; these individuals were also less favourably circumstanced for surgical operations than persons of normal weight, but on the other hand among them the mortality from tuberculosis was below the average. The general result was that obesity increased the insurance risk in an appreciable degree. Dr. Pfeiffer of Weimar discussed the vaccination clauses in insurance contracts and called attention to the extremely small mortality from small-pox in countries where vaccination was compulsory. He hoped that those companies which had struck out the vaccination clause from their examination form would re-introduce it. Dr. S. W. Carruthers of London read for Dr. R. Hingston Fox a paper on a method of distinguishing between the harmless and dangerous types of albuminuria. He pointed out the difference between hæmatogenous and nephritic albuminuria and alluded to various researches published in THE LANCET by Sir A. E. Wright who by the administration of calcium lactate determined to which class a given case of albuminuria belonged. If the albumin disappeared from the urine after the ingestion of calcium lactate it was probably hæmatogenous in origin, and these applicants might be accepted for life insurance if they were otherwise quite healthy. Dr. Carruthers laid before the congress an elaborate system of a standard classification of lives having an under-average value for insurance purposes. Insurance against accidents, which in Germany is carried out not only by private companies but also includes the statutory insurance of workmen, occupied a relatively great part of the proceedings. Dr. Feilchenfeld read a paper on Injuries in Cases of Internal Diseases, with Special Regard to the Public Insurance. Other papers had for their subjects the aggravation of insanity through accidents, the influence of injuries on latent and organic diseases of the brain and spinal cord, and the tests of the aggravation of functional nervous complaints through accidents. The meetings were well attended by medical men of various nationalities. The members were invited to a performance at the Opera House by command of the Emperor; they were also entertained in the town-hall by the municipal authorities and a banquet was given in their honour by the German Association of the Insurance Companies. The next congress will meet at Vienna.

Sept. 17th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Vatican and the Quatercentenary of the University of Aberdeen.

Pius X. is much interested in the approaching *festa* of the "Granite City," and, as his representative on the occasion, has delegated Monsignor Fraser, Rector of the Scots College in Rome, who is also Postulator of the Causes of Scottish Saints before the Congregation of Rites. Another proof of the interest taken in the quatercentenary at the headquarters of the Roman Catholic world is the article in the current issue of the *Vox Urbis* entitled, "De Aberdonia Urbe ejusque Studiorum Universitate." In flowing ecclesiastical Latinity the writer describes the geographical situation, the climate, and the physical character of Aberdeen generally, touching, moreover, on its industries, and dwelling, not without humour, on the keen business aptitudes of its inhabitants. He does not omit the well-known anecdote of the Jew who tried, in the manner of his race, to make his living, if not his fortune, in Aberdeen, and who shortly afterwards returned to tell his astonished family that he "had found the lost tribes." But he forthwith proceeds to vindicate the Aberdonians from the imputation of hardness. "Though the city," he says, "is built of granite, neither the heads nor hearts of the citizens are fashioned out of the same 'dour' material." On the contrary, "humanissimi vere omnes et alienigenas liberaliter comiterque solent excipere." Then follows a eulogy on their love of literature, science, and the studies proper to a University, in the course of which he reminds his readers that not only Aberdeen but also St. Andrews and Glasgow owe their respective seats of learning to the Holy See. A brief, but vivid, sketch of the new buildings of Marischal College—accompanied by effective illustrations from recent photographs—leads up to a paragraph on the celebrities trained at the University, singling out for special notice Arthur Johnston, of European fame as a physician and Latin poet, whose version of the Psalms used to be a text-book in continental, particularly Dutch, schools. The whole article is well worth reading as a tribute, equally cordial and impartial, to a seat of learning which has long passed out of the jurisdiction of the Latin Church, to which it owes its origin.

The Statistics of Malaria.

That only 11 Italian provinces are exempt from this scourge is one of many striking facts to be culled from the report recently issued by the "Direzione Generale di Sanità" on the prevalence of malaria in Italy. The immune provinces referred to are Ancona, Arezzo, Cuneo, Florence, Genoa, Lucca, Macerata, Parma, Pesaro-Urbino, Piacenza, and Porto Maurizio, in some of which, it may be remarked, the mosquito is "strong on the wing." The conditions, indeed, under which it prevails are many and various. While Florence escapes it, Rome on her outskirts and immediately beyond her walls is quite within its sway, which intensifies with every step taken into the Campagna. The verdant hill-side and the wind-swept seaboard are equally subject to it with the sun-baked hamlet of the plain. These contrasted conditions are illustrated in the 2650 communes in which it prevails—the islands of Sicily and Sardinia being not more heavily visited by it than the confines of the province of Udine in Upper Italy. Turin, also in the Alta Italia, shows unfavourably in the report, while, strange to say, on the rim of the Turinese province, there is but one commune officially returned as "malarico"—that of Verolengo!

Sept. 17th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Hospital Reform.

AN Imperial iradé sanctions the division of the Turkish infirmaries of the capital into different sections with special cliniques for gynæcological cases, for eye diseases, for syphilitic maladies, &c. Students leaving the Imperial School of Medicine will have to take a definite course of lectures in these cliniques before engaging in actual practice.

Hygienic Measures.

The High Commission of Public Hygiene has decided to submit, after each summer season, all the houses let to tuberculous patients on the beautiful Princes Islands in the Marmora Sea to a thorough disinfection. Thus the dangers of the spread of the disease will be very considerably diminished. These islands are in every way a delightful health resort, not only for those suffering from pulmonary tuberculosis but also for neurasthenics, persons debilitated in any way, &c. Unfortunately the municipal authorities have taken, up to now, very little interest in the sanitation

of the islands, but there now seems some likelihood of a change in this respect.

Typhoid Fever.

The *Levant Herald* says that in the seventh municipal circle of Constantinople numerous cases of enteric fever have occurred. The High Commission of Public Hygiene, which holds its sittings in the municipal buildings of the metropolis, has been informed of this fact and also of the fact that the water of several fountains used for drinking purposes is very impure. The municipal circle in question has received strict orders to clean all these fountains and to send, at the same time, certain quantities of water for chemical and microscopical analysis.

Sept. 15th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Meeting of the British Medical Association and of Kindred Bodies.

LOOKING at the recent meeting of the British Medical Association in a broad and liberal sense the Canadian must have been struck by three particulars: the regularity of the sectional work; the brilliancy of the opening functions; and the large attendance from Canada present. The first and the last especially will make a lasting impression upon the future gatherings of our own national medical organisation—the Canadian Medical Association. The official registration figures give an attendance from the Dominion of Canada of 1078 out of a total attendance of 1986 and out of a medical population in all Canada of something approaching 6000 practitioners. When it is brought to mind that the largest medical meeting of Canadians which has ever been held did not total an attendance of 350, one cannot but feel that the attraction was not all due to the prestige of the British Medical Association but to a strenuous organisation campaign and to excellent transportation arrangements. Every effort, however, was put forth on the part of the profession in Toronto to make the meeting a pronounced success, and not alone to extend a warm welcome to the members of the Association from the home country but to those as well from other colonies, from the adjacent land to the south of us, and from foreign countries. For, after all, the profession of medicine is cosmopolitan and knows no barriers or distinctions except those won by true merit.

Canadian Medical Association.

The week appointed for the meeting of the British Medical Association began with the annual meeting, the thirty-ninth, of the Canadian Medical Association, held on August 20th, in the afternoon. Dr. A. McPhedran, professor of medicine in the University of Toronto, was in the chair as President, and called upon Mr. Irving H. Cameron, LL.D., F.R.C.S. Eng., to present the report of the special committee on reorganisation. This was the chief item of business taken up and after a short discussion it was decided to take up and deal with it fully at the next annual meeting. The report took the form of an entirely new constitution and by-laws, which will provide for incorporation, the affiliating of present existing societies in the Dominion, the establishment of branches, and the publication of a journal which shall be the official organ of the Association. It was decided to meet next year in Montreal. Professor McPhedran was re-elected President and Dr. George Elliott (Toronto) was re-elected general secretary. All the other officers were re-elected with the exception of the executive council, which this year will be made up of three practitioners in Montreal, Dr. F. J. Shepherd, Dr. E. P. Lachapelle, and Dr. Frank R. England.

Canadian Medical Protective Association.

Following the meeting of the Canadian Medical Association, the Canadian Medical Protective Association held its annual meeting. Dr. R. W. Powell, the President (Ottawa), occupied the chair and presented the annual report. The society, which seeks to defend suits brought against any of its members for alleged malpractice, is an offshoot of the Canadian Medical Association and was formed in 1901 at the annual meeting of that body in Winnipeg in that year. It has done remarkably good work, as although it has defended several suits in that time not one which it ever defended has been lost. It is year by year becoming more popular with the medical profession in Canada and the membership is now approaching 500. Dr. Powell was re-elected President and Dr. Fenton Argue (Ottawa) secretary-treasurer, in succession to Dr. J. A. Grant, jun. (Ottawa), resigned.

Ontario Medical Association.

This society held its annual meeting in the evening of August 20th, but only met in executive session. Dr. George A. Bingham (Toronto) was re-elected President, and Dr. Charles P. Lusk (Toronto) was re-elected secretary. It was decided to meet in Toronto in 1907.

Tuberculosis Exhibition.

In the same building as these societies met there was going on all the week and the week following a tuberculosis exhibition, including photographs, charts, diagrams, maps, models of shacks and tents, &c. This was open to the public and was well patronised, thus exhibiting the interest the public is taking in the prevention and treatment of this disease. Popular lectures were given as well at which some well-known gentlemen delivered addresses.

British Medical Association.

By the morning of August 21st, the opening day of the British Medical Association meeting, upwards of 1000 members had already registered and then began a round of scientific work and pleasure from which a good many are at the present time resting. It would be impossible for me to give even a short synopsis of the work done in the sections and as THE LANCET has already published the addresses no particular attention need be paid to these except to say that they were most thoroughly enjoyed. The social side of the meeting seemed to be well patronised and good fellowship reigned supreme. Amongst the numerous private functions one may be mentioned—namely, the reception and garden party given in honour of Sir Victor and Lady Horsley by Dr. Herbert A. Bruce, whose guests they were. Amongst other entertainments of note were the reception given by the President and Mrs. Reeve; the garden party on the magnificent lawns of Mr. Osler, M.P.; the reception at the City Hall by the mayor and Mrs. Coatsworth; the reception by his honour Lieutenant-Governor Mr. Mortimer Clarke and Mrs. Clarke; the garden party by Mr. and Mrs. Herbert Cox; the garden party at the Toronto General Hospital; and, most noteworthy, the reception on the evening of the last day at the Royal Canadian Yacht Club by Commodore Dr. Albert A. Macdonald and Mrs. Macdonald. The annual banquet in the roller skating-rink of the Victoria Club was another popular gathering, and the management of this reflects much credit upon Dr. F. Le M. Grasett, the chairman of the dinner committee. The exhibition of pharmaceutical preparations, books, and instruments and appliances was well arranged by the chairman, Dr. Arthur Jukes Johnson. Just a word as to the work of the Publishing and Printing Committee, with Dr. Adam H. Wright as chairman. This committee issued an artistic souvenir pamphlet which was the admired of all. It shows to what a high degree the printing art has attained in Canada. In its production two members of the committee deserve special mention—namely, Dr. J. T. Fotheringham and Mr. Edmund E. King (Toronto). The Methodist Book Room, Toronto, may deservedly feel proud of this production.

Sept. 1st.

THE SANCTITY OF RUSSIAN INFIRMARIES.—The *Novoe Vremya* relates that, owing to the intelligence that an individual wanted by the police is being treated in one of the Moscow hospitals, instructions were received from St. Petersburg that these institutions were to be searched by the police. The search was made but without the desired result. A striking incident occurred at the University Psychiatric Clinic, named after Morossoff, where the presiding official, Professor Serbsky, positively refused to allow the police to carry out their search on the ground that the bustle would excite his patients. The city governor proposed that the police should enter the clinic disguised so as to meet the scruples of the professor. But he would have none of the compromise, so his clinic had to be entered by force. It is added that at the Ekaterininsk infirmary the appearance of the police produced a state of wild alarm amongst the patients and the director of the institution is making a complaint to the governor on the subject.

Obituary.

JOHN HENRY BELL, M.D. ST. AND., M.R.C.S. ENG., L.S.A.

Dr. John Henry Bell of Bradford in Yorkshire died very suddenly at Morecambe in Lancashire on Sept. 9th. On the previous day in Bradford he visited his patients in the forenoon as usual and attended at the Eye and Ear Hospital in the afternoon, after which he travelled by rail to Morecambe, where his wife and a daughter were staying. During the evening he made no complaint of feeling unwell, but about 3 A.M. on the 9th he awoke suffering from a pain in the chest and quickly passed away. Dr. Bell was born in 1832, his father being the late Mr. William Bell of Bradford. He received his professional education at the Leeds School of Medicine and took the diplomas of M.R.C.S. Eng. and L.S.A. in 1857. In 1861 he obtained the degree of M.D. at the University of St. Andrews. Soon after becoming qualified he commenced practice in Bradford, his house being at the junction of Lumb-lane and Westgate. The Bradford Eye and Ear Hospital was founded in 1857 and Dr. Bell was associated with it during practically the whole of his professional career. In 1859 he was appointed medical officer and public vaccinator for the west district of the Bradford union; and in 1865 he joined the staff of the Bradford Royal Infirmary and held the appointment of consulting medical officer at the time of his death. About 1877 he began a systematic study of the anthrax infection known as "wool-sorters' disease." In connexion with this question he did much valuable work by his published writings, as well as by papers read before provincial medical societies. THE LANCET of June 5th and 12th, 1880, contained two lengthy and valuable contributions on anthrax from his pen and he was also the author of the articles on Anthrax in Allbutt's "System of Medicine" and in Oliver's "Dangerous Trades." Bradford being one of the principal seats of the woollen industry Dr. Bell had exceptional opportunities for conducting these investigations; he was locally recognised as being one of the first to arouse the public to a sense of the risks incurred by wool sorters and to the necessity for the adoption of special precautions in woollen factories. He was also a strong advocate of the use of eye protectors by persons engaged in certain occupations and he recommended that looms should be provided with shuttle guards. Among the extra-professional subjects which interested him local history and antiquarian research held a high place. He was one of the earliest members of the Bradford Historical and Antiquarian Society and the *Bradford Antiquary*, which is the society's journal, contains articles by him entitled "Fragments of Local Medical History." Dr. Bell was President of the Bradford Medico-Chirurgical Society during the session 1872–73. He married in 1860 and has left a widow, one son, and four daughters. The funeral took place on Sept. 12th at Undercliffe Cemetery, Bradford, in the presence of a large gathering of personal friends of the deceased as well as many representatives of public institutions.

Dr. Andrea Rabagliati of Bradford writes to us as follows:—

"Dr. Bell's name will always be associated with anthrax. Acting on a suggestion thrown out, I believe, by Dr. Eddison of Leeds, that probably wool-sorters' disease might be associated with the growth of some micro-organism in the blood and tissues, Dr. Bell demonstrated the presence of the bacillus anthracis in cases of the internal form of the disease, which up to the time of his observations in the 'seventies' had been returned under various names, such as pneumonia, broncho-pneumonia, heart disease, failure of the heart, splenic fever, mycosis intestinalis, mal-de-rate, wool-sorters' disease, &c. This point having been established, Dr. Bell was largely instrumental in showing that the condition which up to about 20 years ago had been known as malignant pustule was identical with anthracic disease. He was aided in this investigation by other observers but it will always be admitted that Dr. Bell's labours were largely instrumental in establishing the identity of internal and external anthrax. In this inquiry his unusually methodical habits and careful note taking played a great part. He had a most retentive memory but he was not satisfied to trust to it; and it is pathetic now that he has passed away to see the volumes of carefully collected newspaper cuttings and records of cases, all accurately dated, on this subject extending for a period of not much less than 30 years.

After cultivating the micro-organism taken from patients suffering from wool-sorters' disease and showing the effects of inoculation of it on various animals his theoretical conclusions were followed by the embodiment of rules framed for the practical prevention and limitation of the disease. There can be no doubt that these measures, welcomed at once by employers and employed, have to a great extent succeeded in effecting the purpose of diminishing the disease. So much has this been the case that many of his recommendations have been embodied in Acts of Parliament carried through the House of Commons by successive Home Secretaries. In recognition of these services he was presented by the wool-sorters of Bradford and district with a handsome testimonial so long ago as April, 1881.

Dr. Bell had also a wide reputation as an ophthalmic surgeon. He was connected with Bradford Eye and Ear Hospital from its commencement nearly 50 years ago to the day of his death, having been associated with the late Dr. Bronner in founding that institution. Early in his career he drew attention to the very different rates of mortality obtaining in different districts of his own city and strongly condemned the system of building houses back to back on the ground of the construction rendering efficient ventilation impossible.

To a wide grasp of the principles of medicine and surgery Dr. Bell united a high moral character which always made him prefer the public good to any personal gain. These qualities endeared him at once to the general public who were quick to appreciate the high character of his work, and to his colleagues of the profession, in whose estimation, notwithstanding occasional and inevitable differences of opinion, he always held a high place."

THOMAS HARRIS, M.D. LOND., F.R.C.P. LOND.

THE death of Dr. Thomas Harris, one of the best known of Manchester physicians, took place on Sept. 8th at Brewood in Staffordshire. His illness was a very brief one, so that the announcement of his death came not only as a shock but a surprise to his large circle of professional and social friends. His student career was passed in Manchester and Würzburg, and after qualifying his whole professional life was passed in Manchester. At the M.B. examination of the University of London in 1882 he took first-class honours in medicine, qualifying for the gold medal and was first in first class honours in physiology at the first M.B. examination in 1878–79. He graduated as M.D. Lond. in 1883 and took the diplomas of M.R.C.S. Eng. and M.R.C.P. Lond. in 1881 and 1886 respectively. In 1893 he was elected F.R.C.P. Lond. His distinguished career, first as a student, was continued after qualifying. He soon became connected with the Manchester Royal Infirmary as pathological registrar and the result of his experience in that office appeared in the publication of an excellent "Post-Mortem Handbook." At the time of his death he was one of the physicians to the Royal Infirmary and had special charge of the throat department; he also for some time was one of the honorary staff of the Manchester Hospital for Consumption and Diseases of the Throat, and on relinquishing that appointment became one of the consulting physicians. At the time of his death he was lecturer on diseases of the respiratory organs at the University of Manchester, which position he had held for several years. Before holding this appointment he was assistant to the professor of pathology at the University. In the course of years he had held the principal offices in the chief medical societies and was an ex-president of the Manchester Medical Society and of the Pathological Society. As a lecturer he was distinguished by clearness of exposition and an earnest manner, and his lectures were therefore popular among the students. For several years before the removal of the infirmary from the Piccadilly site was decided on he was keenly interested in the controversy that took place—some say, that raged—in the local papers, and he adopted, and sometimes gave strong expression to, the views of those who opposed the removal. The financial aspect, he thought, was not sufficiently weighed by those in favour of removal. It

is not always borne in mind that though a considerable sum may be obtained by special effort the maintenance of a large well-equipped hospital requires a correspondingly large annual income, sufficient provision for which is seldom secured while enthusiasm is fresh; and as benefactors and subscribers die it becomes a more and more anxious task to replace them and to find the money required year by year. However, the change of site to Stanley Grove once decided on Dr. Harris threw himself loyally into the scheme and worked hard for its success. His opinion in cases of throat and chest disease was valued and much sought for, and in his case the term specialist was, as is so often the case, used and misused. His knowledge was too wide and too deep to allow of the somewhat disparaging term specialist being applicable in his case. His contributions to medical literature, both English and German, were numerous and marked by careful research. Clinical lectures on the Pathology and Diagnosis of Early and Late Stages of Pulmonary Phthisis were published in THE LANCET in 1889 and a paper on Pulsus Paradoxus in 1899. His life was cut short when it seemed that many days might be before him; but though short it was strenuous and he did good work. Much sympathy is felt for his widow and family.

EDMUND THOMAS WHITAKER, M.B., C.M. EDIN.

Dr. E. T. Whitaker of Shrewsbury, who died on August 29th after a long illness, was well known throughout Shropshire and some of the adjacent counties. He was the son of Mr. Edmund Whitaker, a medical practitioner at Bacup in Lancashire, and was born in June, 1865. He studied medicine at the Owens College, Manchester, and the University of Edinburgh, graduating in the last-mentioned city as M.B. and C.M. in 1894. He also took the degree of B.Sc. in public health at Edinburgh in 1895 and the diploma of D.P.H. at the University of Cambridge in 1896, and was called to the Bar at the Inner Temple. Soon after becoming qualified he went to Shrewsbury as assistant to Dr. Thursfield and on the death of that gentleman, who was medical officer of health to several local authorities in Shropshire and Montgomeryshire, Dr. Whitaker succeeded him in some of those appointments. He also advised the county councils of Montgomeryshire and Denbighshire and the Severn Conservancy Board on public health matters. Dr. Whitaker possessed a remarkable faculty of acquiring languages. Although not a native of Wales he learned the Welsh language, studied the history and traditions of the people, and became a member of the Honourable Cymmrodorion Society. He was also proficient in the French, German, and Esperanto languages and was secretary of the medical group of Esperantists. He has left a widow and one son, Mrs Whitaker being a daughter of the Rev. E. Griffiths of Meifod. Dr. Whitaker was of an amiable disposition and is sincerely mourned by a large circle of friends. At the funeral, which took place on Sept. 1st in the churchyard at Meifod, the hymn "Bydd myrdd o ryfeddodau" was sung and many sympathetic tributes were paid to the memory of the departed.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The following candidates having passed the examination in Tropical Medicine and Hygiene are entitled to receive the diploma:—

Samuel Anderson, Robert Thomas Booth, Charles Walter Holden-Thomas Campion Lauder, Harry Strickland McGill, Edward McKillop Nicholl, Ambrose Thomas Stanton, Lessel Philip Stephen, Edmund Wilkinson, and Andrew Watson Cook Young.

MATER MISERICORDIÆ HOSPITAL, DUBLIN.—A dinner of the past and present students of this hospital will be held at the Shelbourne Hotel, at 7.30 P.M., on Saturday, Oct. 6th, when Sir Christopher Nixon, Bart., will be entertained by the Medical Board. Dinner tickets, with wine, 21*s.*; without wine, 10*s.* 6*d.* each person. Past students may invite not more than one guest each. Cards of invitation will be sent to guests by the secretary. Past or present students who desire to be present should send their names, with the names and addresses of their guests, and the necessary subscriptions, to Dr. Martin Dempsey, 35, Merrion-square, Dublin. No subscription will be received and no withdrawal accepted after 9 A.M. on Thursday, Oct. 4th.

VACCINATION GRANT.—Mr. Sigismund H. Rentzsch, M.R.C.S., L.R.C.P. Lond., Week St. Mary, North Cornwall, has for the fifth time in succession received the grant for successful vaccination.

DONATIONS AND BEQUESTS.—Lord Iveagh has given a donation of £1000 to the London Hospital.—St. Mary's Hospital has received a further anonymous donation of £1000 towards the sum required to enable the Clarence memorial wing to be furnished and opened for patients.—Mr. Joseph Storrs Fry of Bristol has subscribed £1000 to start a scheme for raising £10,000 for extensions and improvements at the Bristol General Hospital. Sir Edward Wills has given £1500 to the same institution to endow a bed.—By the will of the late Hon. Reginald A. Capel the Great Northern Central Hospital benefits by the sum of £1000.—The Merthyr General Hospital will benefit to the extent of £1000 under the will of Mr. J. Panel Poole of Merthyr.

LITERARY INTELLIGENCE.—Messrs. W. B. Saunders Company announce for early publication a new work on "Surgery, its Principles and Practice," edited by Dr. W. W. Keen, Professor of Surgery, Jefferson Medical College, Philadelphia. The work is complete in five octavo volumes of about 800 pages each, and contains over 1500 illustrations. Dr. Keen has secured as editors of the various articles men whose names are specially associated with the subjects upon which they have written. It is not intended that the work should express the thought of any one country but will be contributed to by 65 of the world's leading surgeons. Each chapter will represent a complete and original monograph by an authority of recognised eminence.—"Race Culture; or, Race Suicide?" is the title of a work by Dr. Robert R. Rentoul of Liverpool, which the Walter Scott Publishing Company, Limited, London and New York, is issuing in October. The author states that the work is "a plea for the unborn," and the giving of more attention to the begetting of a healthy race. It is written for medical and non-medical thinkers, and the causes of degeneracy are discussed in 21 chapters, while suggestions are made for the prevention of an increase of degeneracy.—Messrs. John Wright and Co., Bristol, will very shortly issue a complete set of large midwifery diagrams designed for the use of lecturers to midwives and elementary students by Dr. Victor Bonney. The set comprises 160 figures upon 24 large sheets, 2 feet 2 inches by 3 feet 4 inches, uniform with the well-known "First Aid" Diagrams by the same firm. The figures are intended to constitute a complete pictorial course in the subject. The whole set will be supplied for 2 guineas, or single sheets at 2*s.* each.

THE METROPOLITAN ASYLUMS BOARD AND THE SUPPLY OF ANTITOXIN.—At a meeting of the Metropolitan Asylums Board on Saturday, Sept. 15th, a letter was read from the Local Government Board respecting the proposal of the managers to provide central laboratories at Peckham Rye in connexion with their scheme for the preparation of antitoxin. The Board stated that it seemed to it that the annual cost of the scheme—viz., £4000—had been underestimated by the managers. The estimate of £4000 was based apparently on the assumption that the present laboratory staff would be sufficient for the much larger laboratories proposed, although an increase of staff would seem to have been foreshadowed by the report made by Professor G. Sims Woodhead and Dr. G. E. Cartwright Wood. Moreover, the plans submitted provided for a second assistant bacteriologist, an officer who was not included on the present staff. The Board, however, gathered from the correspondence now forwarded that adequate accommodation to provide for the increasing laboratory work could have been obtained at the Examination Hall on the Embankment at an annual rental of £1000, and it seemed to the Board that if that accommodation was still available the managers would be better advised to secure it, not only on the score of economy but on the ground that the accommodation would be more central than the proposed site at Peckham. In conclusion, the Board stated that it was strongly of opinion that if the necessary arrangements could be made with the Examination Hall authorities for

meeting the requirements of the managers it would be preferable to proceeding with the present expensive scheme for providing permanent accommodation. The letter was referred to the hospitals committee for consideration.

PRESENTATION TO A MEDICAL PRACTITIONER.—At Stroud (Gloucestershire) General Hospital on Sept. 5th, in the presence of a large and influential assembly, the Right Hon. Sir John Dorington, on behalf of the subscribers, presented Mr. A. S. Cooke, consulting surgeon to the institution, with a silver salver, suitably inscribed, and a cheque for 120 guineas "in grateful recognition of over forty years' devoted service to the hospital."

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, 41 and 43, Maddox-street, Bond-street, London, W.

A Guide to Diseases of the Nose and Throat and Their Treatment. By Charles A. Parker, F.R.C.S. Edin., Surgeon to the Throat Hospital, Golden-square, W. Price 18s. net.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, London, W.C.

Clinical Studies in the Treatment of the Nutritional Disorders of Infancy. By Ralph Vincent, M.D., M.R.C.P., Physician to the Infants' Hospital, London. Price 3s. 6d. net

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

L'Auto-Intoxication Intestinale. Par le Dr. A. Combe, Professeur de Clinique Infantile à l'Université de Lausanne, Chef du Service des Enfants, Président de la Société Suisse de Pédiatrie. Price Fr. 12.

BLACK, ADAM AND CHARLES, Soho-square, London, W.

Tuberculosis: Its Origin and Extinction By W. Pickett Turner, M.D. Price 2s. 6d. net. (Post free 2s. 9d.)

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

A Short Practice of Medicine. By Robert A. Fleming, M.A., M.D., F.R.C.P.E., F.R.S.E., Lecturer on Practice of Medicine, School of the Royal Colleges, Edinburgh; Assistant Physician, Royal Infirmary, Edinburgh. Price 10s. 6d. net.

FISCHER, GUSTAV, Jena.

Anatomische Physiologische und Physikalische Daten und Tabellen zum Gebrauche für Mediziner. Von Dr. Hermann Viecordt, Professor der Medizin an der Universität Tübingen. Dritte neu bearbeitete Auflage. Price M 16; geb., M.17.50.

Handbuch der medizinischen Statistik. Von Dr. med. Friedrich Prinzing, prakt. Arzt in Ulm a.D. Price M.15; geb., M.16.

J. B. LIPPINCOTT COMPANY, Philadelphia and London.

Clinical Diagnosis. A Text-book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers, and Practitioners of Medicine. By Charles Phillips Emerson, A.B., M.D., Resident Physician, the Johns Hopkins Hospital; Associate in Medicine, the Johns Hopkins University. Price 21s. net.

SHERRATT AND HUGHES, 27, St. Ann-street, Manchester, and 60, Chandos-street, London, W.C. (Publishers to the Victoria University of Manchester.)

Practical Prescribing and Dispensing. For Medical Students. By William Kirkby, sometime Lecturer in Pharmacognosy in the Owens College, Manchester. Second edition. Price 5s. net.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

L'Ame et le Système Nerveux, Hygiène et Pathologie. Par Auguste Forel, Ancien Professeur de Psychiatrie à l'Université de Zurich. Price Fr. 5.

THACKER, SPINK AND CO., Calcutta (W. THACKER AND CO., 2, Creed-lane, London, E.C.).

Manual of Aseptic Surgery. By E. A. R. Newman, M.D., M.R.C.S.E., Major, I.M.S., late House Surgeon, West London Hospital. Price 5s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALEXANDER, HUGH DE MAINE, M.D. Edin., has been appointed Medical Superintendent of the Kingseat Asylum.

BALL, C. R. H., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Hunstanton District of the county of Norfolk.

DONALD, ROBERT, M.R.C.S., L.R.C.P. Lond., D.P.H. Oxon., has been appointed Public Vaccinator for the District of Blueskin, New Zealand.

GLENNY, ELLIOTT T., B.S. Lond., has been appointed House Physician at the Essex and Colchester Hospital.

HARRIS, JOHN RICHARDS, M.D. Melb., has been appointed Officer of Health for the Shire of Ruthergien, Victoria, Australia.

IVENS, FRANCES, M.B., M.S. Lond., has been appointed Honorary Medical Officer for Diseases of Women at the Stanley Hospital, Liverpool.

KING, JAMES, M.B., B.S. Durh., has been re-appointed Medical Officer of the Borough of Leigh Urban District Council, Lancs.

LAWSON, THOMAS CORNELIUS, M.R.C.S., L.S.A., has been appointed Medical Officer for the Hartland District by the Bideford (Devon) Board of Guardians.

MCILROY, A. LOUISE, M.D., L.M. Rotunda, has been appointed Extra-Dispensary Gynæcologist at the Glasgow Royal Infirmary.

MOORE, C. A., M.B., B.S. Lond., has been appointed House Surgeon at the Stanley Hospital, Liverpool.

MOORE, P. M., L.R.C.P. & S. Irel., has been appointed Dispensary Officer for the District of Strangford, Downpatrick.

MORRISON, J. W. H., M.B., B.S. Durh., B.Hy., D.P.H., has been appointed Certifying Factory Surgeon for Blaydon, Whickham, and Ryton Urban Districts, and Medical Officer of Health of the Blaydon Urban District.

PARRY, T. WILFRED, M.B., Ch.B. Liverp., has been appointed House Physician at the Royal Southern Hospital, Liverpool.

PRESTON, GEORGE, L.R.C.P. Edin., M.R.C.S., D.P.H. Lond., has been re-appointed Medical Officer of Health of Saltash (Cornwall).

PRICE, THOMAS A., M.B., Ch.B. Edin., has been appointed Fourth Honorary Surgeon to Toowoomba Hospital, Queensland, Australia.

RYAN, SYDNEY HAMILTON, L.S.A. Lond., M.B., B.S. Manch., has been appointed Public Vaccinator for the Districts of Porangahau and Wainui, New Zealand.

THOMSON, CHARLES SAMSON, M.B., Ch.B. Glasg., has been appointed House Surgeon at the Sunderland Infirmary.

TOMLINSON, W. R., L.R.C.S. Irel., has been appointed Government Medical Officer to the Narromine District, New South Wales, Australia.

WILSON, ALEXANDER, F.R.C.S. Edin., M.D. Glasg., has been appointed Honorary Visiting Surgeon to the Wanganui Hospital, New Zealand.

WOOD, J. H., M.B., B.S. Durh., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Leyburn District of the county of Yorkshire.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL ASYLUM.—Senior Resident Assistant Physician. Salary £200.

AYR DISTRICT ASYLUM.—Senior and Junior Assistant Physicians, at £150 and £120 respectively per annum, with board, apartments, laundry, and attendance.

BIRMINGHAM, GRAVELLY HILL, ASTON UNION WORKHOUSE AND COTTAGE HOMES.—Resident Assistant Medical Officer. Salary £120 per annum, with apartments, rations, and washing.

BIRMINGHAM ASYLUM, Rubery Hill.—Assistant Medical Officer. Commencing salary £150 per annum, with apartments, board, &c.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

BRIGHTON AND HOVE LYING-IN INSTITUTION AND HOSPITAL FOR WOMEN.—Honorary Anæsthetist.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with board, residence, and washing.

CHORLTON AND MANCHESTER JOINT COLONY FOR EPILEPTICS, Langho, near Blackburn.—Resident Medical Officer. Salary £150 per annum, with board and residence.

DERWENT VALLEY WATER BOARD.—Medical Officer for Workmen's Village at Birchinlee.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Medical Officer for six months. Salary at rate of £100 per annum.

EGYPTIAN GOVERNMENT, MINISTRY OF EDUCATION.—Professor of Midwifery and Gynæcology. Salary £400 a year. Also Medical Tutor and Registrar to Kasr-el-Ainy Hospital. Salary £400 a year.

ENNISKILLEN, FERMANAGH COUNTY INFIRMARY.—House Surgeon. Salary £52 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Clinical Assistants.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Physician, unmarried. Salary £60 per annum, with board, lodging, and washing (no stimulants).

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—House Surgeon, unmarried. Salary £75 per annum, with residence, board, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Physician. Also Resident House Physicians. Honorarium £25 for six months.

HULL ROYAL INFIRMARY.—Honorary Physician.

LEICESTER INFIRMARY.—Resident Surgical Dresser for six months. Honorarium £10 10s.

LEWES DISPENSARY AND INFIRMARY AND VICTORIA HOSPITAL.—Resident Medical Officer. Salary £104 per annum, with apartments, board, washing, and attendance.

LIVERPOOL, CITY OF.—Assistant Medical Officer of Health. Salary £250 per annum.

LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

LIVERPOOL, TOXTETH PARK WORKHOUSE AND INFIRMARY.—Assistant Resident Medical Officer. Salary £100 per annum, with board, washing, and apartments.

MACCLESFIELD, CHESHIRE COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £140, rising to £160, with apartments, board, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board and residence.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Physician. Salary £80 per annum, with board, residence, &c.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, and washing.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead.—Resident Medical Officer. Honorarium £50 per annum, with board, lodging, &c.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

NORTH-WEST LONDON HOSPITAL, Kentish Town-road. — Second Honorary Anæsthetist.

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing.

PADDINGTON INFIRMARY.—Second Assistant to the Medical Superintendent, unmarried, for six months. Honorarium £36, and board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL), City-road, E.C.—Senior House Surgeon. Salary at rate of £100 a year, with board and residence.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—House Physician and Casualty House Surgeon for six months. Board, &c., are provided. Also Resident House Physician and Resident House Surgeon. Board, &c., are provided.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

ST. PANCRAS AND NORTHERN DISPENSARY, 126, Euston-road.—Resident Medical Officer, unmarried. Salary £105, with residence and attendance.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—DREADNOUGHT HOSPITAL, Greenwich:—Two House Physicians and Two House Surgeons for six months. Salaries at rate of £50 per annum, with board, residence, and washing. Also Honorary Dental Surgeon. Also Honorary Medical Officer for the Electrical Department. BRANCH HOSPITAL, Royal Albert Dock, E.:—Senior House Surgeon for six months. Salary at rate of £75 per annum and additional £25 per annum for acting as Registrar, &c., with board, residence, and washing. Also House Surgeon for six months. Salary at rate of £50 per annum, with board, residence, and washing. Also Honorary Anæsthetists.

SHREWSBURY, SALOP INFIRMARY.—House Physician for six months. Salary at rate of £50 per annum, with board and apartments. Also House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

WEST HAM WORKHOUSE AND SCHOOL.—Assistant Medical Officer. Salary £125 per annum for Workhouse, and £25 per annum for School, rising to £180 per annum, with residential allowances.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeon under the Factory and Workshop Act at Newhaven, in the county of Sussex; at Tullamore, in King's County; at Lees, in the county of Lancashire; and at Perranporth, in the county of Cornwall.

Births, Marriages, and Deaths.

BIRTH.

WILKINS.—On Sept. 16th, at Stayer House, Eye, the wife of Colonel J. S. Wilkins, I.M.S., D.S.O., of a son.

MARRIAGES.

ALEXANDER—GOING.—On Sept. 15th, at the parish church, Cahir, Major J. Donald Alexander, R.A.M.C., to Georgina Eleanor, youngest daughter of the late Alexander Going and Mrs. Going of Altavilla, Cahir.

HOWLAND—CARRINGTON.—On Sept. 11th, at St. Saviour's, Walton-street, S.W., Goldwin William Howland, M.B. Toronto, M.R.C.P. Lond., to Margaret Christian, only child of William T. H. Carrington, M.Inst.C.E., and Mrs. Carrington, of Clapham, Surrey.

REILLY—OWEN.—On Sept. 15th, at St. Michael and All Angels, London Fields, Percy George Reilly, M.R.C.S., L.R.C.P., to Laura May Owen, daughter of the late William Owen, M.R.C.S., L.R.C.P., of the Hollies, Shore-road, Hackney.

WEBB JONES—WAKEMAN LONG.—On Sept. 12th, at St. Mary Abbotts, Kensington, by the Rev. Prebendary Prosser, vicar of Twickenham, uncle of the bride, Arthur Webb Jones, F.R.C.S., of Alexandria, formerly of the Egyptian Army, to Lilian Bell, younger daughter of the late Captain Wakeman Long, 61st Regt., and Mrs. Wakeman Long.

DEATHS.

CATTLIN.—On Sept. 12th, at Westbourne-terrace, Hove, Sussex, William Cattlin, M.R.C.S. Eng., aged 63 years.

GOODSALL.—On Sept. 14th, at Devonshire-place, David Henry Goodsall, F.R.C.S.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

During the week marked copies of the following newspapers have been received:—*Dumfries and Galloway Courier, Evening News, Barnsley Chronicle, Bristol Observer, Croydon Advertiser, Ardrossan and Saltcoats Herald, Windsor and Eton Express, Scottish Co-operator, Liverpool Courier, Portadown News, Yorkshire Post, Southampton Echo, Aberdeen Journal, Manchester Dispatch, Aberdeen Free Press, Glasgow Herald, Belfast News, Westminster Gazette, Scientific American, Literary Digest (New York), Eastern Post, Weekly Times and Echo, Morning News (Hull), Chiswick Times, Sphere, Sheffield Evening Telegraph, &c.*

Notes, Short Comments, and Answers to Correspondents.

THE PROSTITUTION OF THE POST OFFICE.

WE have received the following letter for publication:—

To the Editors of THE LANCET.

SIRS,—The inclosed papers were sent by post in a wrapper, not an envelope, addressed in English to an unmarried young lady in this house and opened by her. It seems likely that the Christian name, surname, and address were correctly copied from a luggage label when the recipient was on her way through Paris. It seems very unlikely that the young lady in question is the only one in England that has received a copy of these papers. Is there any means of putting a stop to the circulation of these grossly immoral publications? Yours faithfully,

5, Stratford-place, W., Sept. 17th, 1906. THOMAS SMITH.

The inclosed papers to which Sir Thomas Smith refers consist, firstly, of the September number of a monthly journal called *Régénération*, being the organ of the Ligue de la Régénération Humaine, and published at 27, Rue de la Duée, Paris. The other papers are three leaflets, one of which sets out the objects of the above-mentioned league and draws special attention to the fact that its chief end is to prevent pregnancy and not to procure abortion. We observe, however, among the advertisements in the journal one of a book entitled "Le Droit à l'Avortement," which, to say the least of it, is a suspicious title. The author is Dr. J. Darricarrère, whose name appears in a list of practitioners recognised (*Agréés*) who are willing to give advice as to avoiding pregnancy, but we should mention that the list is headed by a notice that demands for abortion will not be answered. Other papers are a price-list of accessories for the prevention of conception and a special leaflet advertising the benefits of the "*cônes préservatifs*" of Dr. MASCAUX. These are announced to be one of the most simple and best means employed up to the present for preventing conception. They are also the sole preservative which is able to be employed by virgins. We shall be happy to forward this assortment of filth to His Majesty's Postmaster-General, if he would like to see it, and in the meantime we should like to ask him if the Department over which he presides has no power of stopping the distribution of such abomination.

THE CONSULTANT AND THE GENERAL PRACTITIONER.

To the Editors of THE LANCET.

SIRS,—A recent experience may be of interest to those of your readers who, like myself, are general practitioners, the more so as it raises a point, I hope a novel point, in the relationship existing between consultants and their humbler brethren. A short while ago I purchased my present practice, among the patients being a Mr. X. I was duly introduced to Mr. X by my predecessor and spent a pleasant social evening with him and his family, being, as far as I could judge, favourably received by them. I was, therefore, a little surprised to read the notice of Mr. X's death in the daily papers some six weeks later, having neither seen nor heard anything of him in the meantime. However, I concluded that for some reason or other he had not cared to consult me and thought no more of the matter until I was informed of the following interesting facts. Mr. X, it appeared, had visited a well-known consultant on his own account, to whom was imparted the information that Mr. X had been for some time under the care of my predecessor and had decided to place himself under mine. "No," replied the consultant, "I know a very good man in your neighbourhood (my neighbourhood), and wish you to place yourself under him during my absence from town," which Mr. X did. To complete the little story, I may mention that the gentleman referred to has been qualified less than half as long as myself; our qualifications are about on a par. Although I personally have little if any grounds for a grievance, inasmuch as Mr. X had not actually consulted me, still the bare idea of a consultant diverting one's patients to his protégés "*during my absence*" opens up a rather disquieting avenue of thought.

I am, Sirs, yours faithfully,

Sept. 17th, 1906. M.B. Lond.

A CURIOUS FORM OF FRAUD.

WE have received from Messrs. John Knight and Sons, Limited, o Silvertown a number of letters written to them, apparently by the same person, who, by representing himself to be a medical practitioner, has obtained, or has endeavoured to obtain, from them free samples of the soaps which they manufacture. As Messrs. Knight suggest, a similar kind of forgery may be used by the same impostor or by others in order to obtain goods, possibly of higher intrinsic value, from other firms, and publicity may serve as a warning to these or as a deterrent to the ingenious gentleman who has devised this curious method for obtaining a stock of soap. The letters before us bear various dates in March, June, and July, and different addresses at Wolverhampton, Wellington (Salop), Merthyr Tydvil,

Pontypool, and Hereford. They are written in the same handwriting, or where this varies notepaper of the same kind is used, and they ask briefly for samples of soap or of medicated soap with price list. Different names are signed, followed by initials representing medical degrees. We have no desire to speculate as to the identity of the writer of these letters or as to his object in writing them. He may be trying to stock a small shop economically, and he may possibly take advantage of the free re-direction permitted by the General Post Office in order to have the goods sent forwarded to him from various quarters to his usual address, or he may possibly be a tramp with sanitary inclinations who desires to be supplied with suitable detergents at the various towns which he visits. Presumably the police would be capable of detecting him and of discovering his motives should it be thought worth while to apply to them in the matter. We are more concerned that the names of supposed medical men should be used and that the courtesy accorded to medical men by traders should be used as a cloak by a common cadger. The practice of sending gratuitous samples of their wares to members of the medical profession without being invited to do so is one which concerns those manufacturing chemists, druggists, and other traders who choose to select this method of advertising their wares. It must constitute a severe tax upon them but the necessities of competition and trade rivalry which bring it about are for their consideration rather than for ours. We do, however, consider it highly desirable that members of the medical profession should refrain from increasing that tax, and from laying themselves needlessly open to obligation by asking for goods or samples of goods to be sent to them at the sole expense of the sender. The fact that in the instance now before us a fraudulent person should obviously have adopted such a plan in order to make a dishonest profit for himself seems to prove the existence of such a practice as certainly as it discredits it and holds it up to censure. With those who have before been customers of the firm to which they apply, or who are otherwise known to them, the case is different, but for strangers the better course would be to inclose some small sum in full payment of postal charges, at any rate, and to pay for all samples received when no further order is given. Price lists are, of course, upon a different footing, but these might contain an intimation of the terms upon which samples of the goods described in them can be obtained. The objection to accepting anything without payment arises, to put the matter quite plainly, from the possible suggestion that the present is a price paid for future recommendations.

DISGUSTING ADVERTISEMENTS.

A CORRESPONDENT has forwarded us a cutting from the *Cornish Times* of August 24th. The cutting contains some singularly disgraceful advertisements dealing with drugs which are obviously advertised as being capable of bringing about abortion. That they will probably not do so is beside the point, but, as we have so often pointed out before, the advertisers are in this dilemma: if they sell something that will bring on abortion they are criminal; if they do not so, they are fraudulent. We think that the proprietors of the *Cornish Times* will be well advised to eliminate any such advertisements from their forthcoming issues. We quote the following one to show the kind of thing to which we refer:—

> Mrs. HOLLISS
> HERBALIST AND SPECIALIST 10/6
> ADVICE TO LADIES.—Do not resort to quack Medicines, Bogus Widows and Nurse Nostrums, but rely on NATURE'S REMEDIES for all irregularities and obstructions. A large bottle of Mixture and Box of Pills, full strength, sent post free in plain wrapper for 10s. 6d.—Mrs. HOLLISS, 72, Mallinson-road, Clapham Junction, London.

But Dr. Braam's Apiol Rondelles and Dr. Reed's Female Pills belong to the same class. Each is a "cure for all irregularities," while Dr. Reed's remedy also purports "to remove all obstructions, from whatever cause." In juxtaposition with these advertisements we find the business cards of C. Murray, by whom "lack of vigour, varicocele, and all the allied troubles" can be speedily cured; and of T. Kerr, who addresses a threepenny book of "sound practical information" to all married people. Those responsible for the advertisement columns of the *Cornish Times* ought to recognise that money should not be taken from such people as these advertisers.

THE LONDON MEDICAL EXHIBITION.

THE secretary of the Second London Medical Exhibition, which is to be held at the Royal Horticultural Hall, Vincent-square, Westminster, from Oct. 1st to 5th, 1906, is sending free tickets of admission to all medical men within a radius of 20 miles from London. He will also upon request send a ticket of admission to any member of the profession residing in the provinces but who happens to be in London during the week of the exhibition. Application should be made to the Secretary, London Medical Exhibition, *British and Colonial Druggist* Offices, 44, Bishopsgate Without, London, E.C.

CONVERSATIONAL RISKS.

To the Editors of THE LANCET.

SIRS,—We flush drains and wash out floors and scour cisterns—do we ever wash out speaking-tubes? They are often merely a metal pipe with a screwed on pair of mouthpieces. are as immortal as protoplasm and must become coated with the organic residuum of eternal remarks: The breath of the Prophet could not beat them for septic suggestiveness. I am, Sirs, yours faithfully,

GEORGE H. R. DABBS, M.D. Aberd.

London, E.C., Sept. 13th, 1906.

CELLULOID VARNISH.

The following process is recommended (Neuste Erfindungen und Erfahrungen, 1906, No. 33, p. 249, quoted in Pharmaceutical Journal) for preparing a celluloid varnish which may have useful applications in surgery. Colourless celluloid in thin sheets, cut small, is placed in a stoppered bottle and covered with a solvent consisting of methylated spirit and ether, in the proportion of 4 to 1. The whole is allowed to stand, with occasional agitation, until the cellulose swells and dissolves, forming a clear syrupy liquid, which is brought to the desired consistency by the addition of more of the solvent. The varnish may be rendered pliable and elastic by adding a little castor oil, not exceeding 2 per cent. of the total weight of the varnish.

FIJIAN FRUIT BATS.

Dr. G. A. Mason of George-street, Portman-square, has forwarded to us the following letter which was addressed to him. He says that obviously some mistake has occurred, for the writer is unknown to him and he has never made any inquiry about fruit bats, and therefore presumably the communication is intended for another person of the same name. He asks us to give the letter publicity in the hope that the seeker after fruit bats may see it and communicate with the writer:—

> Labasa Government Station, Macuata, Fiji,
> June 30th, 1906
>
> DEAR SIR,—It will give me much pleasure to assist you, in any way I can, to collect specimens of the fruit bats found in these islands. I believe there are some five or six species, at all events. There is one spoken of as a "tailed" bat and another described as the "red bat" found in old banana plantations.
>
> The present is the cold season, and it will be some time before the bats appear in numbers, but I shall make arrangements to secure specimens.
>
> We have no skilled taxidermist in the colony, and I believe it will be better to forward the specimens in spirit.
>
> I shall communicate with you again as soon as I have made progress with the collection. Communication between the islands is slow and infrequent, and so some time must necessarily elapse before I can send you what you want.
>
> Believe me, faithfully yours,
> C. A. LA TOUCHE BROUGH.
>
> George A. Mason, Esq., M.D., 45, George-street, Portman-square, London, W.

HOME FOR A VICTIM TO THE MORPHINE HABIT.

To the Editors of THE LANCET.

SIRS,—Could any of your readers inform me of a home or an institution where a man of 40, the son of a deceased medical practitioner, could be taken in for treatment? A fee of £2 2s. or a little more a week could be allowed. The charges are so high in most of the advertised respectable places that the amount could not be afforded.

I am, Sirs, yours faithfully,
BLOBUS.

A SCISSORS SHIELD FOR CIRCUMCISION.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 25th there is an account of a new scissors shield for circumcision brought forward by Dr. H. Dutch. In your journal dated Nov. 24th, 1900, there is an account of a similar instrument invented by me which Messrs. Mayer and Meltzer have since manufactured. I have no doubt Dr. Dutch's attention has not been drawn to this fact.—I am, Sirs, yours faithfully,

E. R. HAINES CORY, M.R.C.S. Eng., L.R.C.P. Lond.

Bournemouth, Sept. 12th, 1906.

F.R.C.S. Edin.—Our correspondent should consult the Students' Number of THE LANCET, published on Sept. 1st. In the meantime we may recommend him Jacobson and Steward's "Operations of Surgery" (Churchill, 42s.), or Treves and Hutchinson's "Operative Surgery" (Cassell, 42s.). A good general book of surgical pathology is Bowlby's "Surgical Pathology" (Churchill, 10s. 6d.), while for general pathology Sidney Martin's book entitled "General Pathology" will, we think, meet his requirements.

E. G. K.—We do not think that in popular opinion there is any difference in standard, but on the whole we think that the qualifications marked A would carry more weight than those marked B.

T. W. A.—There is no rule. Sometimes a stipend is agreed upon, but more frequently the circumstances make it fair that nothing should be paid.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.

THE LANCET Office, Sept. 20th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks
Sept. 14	29·89	W.	0·20	116	69	58	55	57	Fine
,, 15	29·58	N.W.	0·41	113	67	54	54	57	Overcast
,, 16	29·78	N.W.	...	91	61	48	52	55	Cloudy
,, 17	30·03	N.W.	0·23	95	65	50	51	54	Overcast
,, 18	30·13	ESE	0·06	105	65	54	54	57	Overcast
,, 19	30·13	N.E.	0·03	76	61	56	56	59	Overcast
,, 20	30·18	N.E.	0·06	87	63	56	57	59	Overcast

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond street (3 P.M.).

TUESDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2.15 P.M.), Ophthalmic, 2.15 P.M.).

WEDNESDAY (26th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), West, minster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (27th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (29th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies street, W.C.).—4 P.M.: Dr. H. G. Adamson: Clinique. (Skin.)

TUESDAY (25th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. H. Campbell: Clinique. (Medical.)

WEDNESDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. H. L. Barnard: Clinique. (Surgical.)

THURSDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

FRIDAY (28th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. H. Eason. Clinique. (Eye.)

SATURDAY (29th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

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